Islamic finance for infrastructure development: Concepts and evidence

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Abstract

Islamic finance embodies a principled approach to investment and financing that prioritizes risk sharing, ethical considerations, social welfare, and financial inclusion. This chapter delves into the nature of infrastructure financing within the Islamic financial framework, exploring the unique characteristics that distinguish it from conventional financing methods. It elucidates the various instruments utilized in structuring such financing, such as Murabaha, Ijarah, Istisna'a, Musharakah, Mudharabah, and a combination of contracts such as Sukuk, and assesses their applicability and effectiveness in infrastructure projects financing. This chapter adopts both qualitative and quantitative methods of reasoning and utilizes content analysis to explore the potential role of Islamic finance in infrastructure development or project financing. Through an examination of case studies, this research highlights practical examples of how Islamic finance has been employed in infrastructure financing across different regions and sectors. Furthermore, the paper addresses the challenges faced in this field, including regulatory, legal, and market perception issues, while also discussing the prospects and potential for growth and innovation in Islamic infrastructure financing. Some policy recommendations are also provided to unlock the potential of Islamic finance in infrastructure development.

Keywords: Islamic Finance, Sukuk Al-Ijarah, Infrastructure Financing, PPP & BOT

JEL Classification: E43, G12, G13, F3, P4

1.0 INTRODUCTION

Infrastructure development is a pivotal driver of economic growth and social progress. It encompasses a broad range of sectors, including transportation, energy, water, and telecommunications, which are fundamental to enhancing the quality of life and fostering sustainable development. Traditionally, infrastructure provision is the government's responsibility (Patel & Bhattacharya, 2010). However, due to the huge funds required coupled with an upsurge in demand as well as increasing public debt and interest payments (COMCEC, 2019; Selim et al.

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2019; & Heitzig et al. 2021). Hence, reliance on public budgets to finance infrastructure is no longer sustainable (Biancone & Radwan, 2018). Although, Public-Private Partnership (PPP) arrangements offer solutions to increase investments and efficiencies in public infrastructure as they leverage private innovation and capital to provide public services more efficiently (AfDB, 2021), notwithstanding the problems associated with the approach (Gundogdu, 2019 & AfDB, 2021). Accordingly, the evolving landscape of global finance has seen a significant shift towards more ethical and socially responsible financing methods, among which Islamic finance stands out due to its unique principles and rapid growth (Smith & Rahman, 2020).

Meanwhile, the global infrastructure deficit is wide: 940 million individuals are without electricity, 663 million lack improved sources of drinking water, 2.4 billion lack improved sanitation facilities, 1 billion live more than 2 kilometers away from an all-season road, and uncounted numbers are unable to access work and educational opportunities due to the absence or high cost of transport services (Rozenberg Fay, 2019). It was envisaged, for instance, that between 2016 and 2030, global investment in economic infrastructure must reach approximately 3.8% of GDP annually, averaging $3.3 trillion, to sustain anticipated growth rates. Meanwhile, around 60% of this requirement originates from emerging economies. Moreover, if the ongoing trend of insufficient investment persists, there will be an annual shortfall of about 11%, equivalent to $350 billion. This gap widens to three times its size when factoring in the extra investment needed to achieve the new UN Sustainable Development Goals (Mckinsey, 2017; Baita & Mustafa, 2019; and Baita & Suleiman, 2021).

Islamic finance distinguishes itself from conventional finance through its strict adherence to Shari'ah law, which prohibits the payment or receipt of interest (*riba*), necessitates asset-backed transactions, and emphasizes risk-sharing mechanisms. These principles not only align with ethical banking standards but also introduce a novel approach to financing infrastructure projects (Khan & Bhatti, 2018). The growing interest in Islamic finance for infrastructure development is not only due to its ethical appeal but also its potential to mobilize substantial capital in Muslim-majority countries and beyond. It was found that Sukuk can fill the huge infrastructure deficit in sub-Saharan Africa (SSA) via a huge investor base in the Middle East, and Southeast Asia, particularly Malaysia and Indonesia (Gelbard et al. 2014; Ahmed, 2017; COMCEC, 2019).

This chapter delves into the nature of infrastructure financing within the Islamic financial framework, exploring the unique characteristics that distinguish it from conventional financing methods. It elucidates the various instruments utilized in structuring such financings, such as Sukuk, Murabaha, Ijarah, Istisna'a, Musharakah, and Mudharabah, and assess their applicability and effectiveness in infrastructure projects financing. Through an examination of case studies, this research highlights practical examples of how Islamic finance has been employed in infrastructure financing across different regions and sectors. Furthermore, the paper addresses the challenges faced in this field, including regulatory, legal, and market perception issues, while also discussing the prospects and potential for growth and innovation in Islamic infrastructure financing.

Against this background, this paper provides a synthesis of Islamic finance in the context of infrastructure projects. This chapter adopts both qualitative and quantitative methods of reasoning and utilizes content analysis to explore the potential role of Islamic finance in infrastructure development or project financing. It is organized into five sections. Section one provides a general background whereas section two presents the essence and principles of Islamic finance as applied in financing infrastructure. The section also contains the meaning of Sukuk and some of the common Sukuk structures applied in financing infrastructure. Section three reviews global trends of Sukuk issuances for infrastructure development. Section four highlights some of the challenges confronting Islamic finance and Sukuk structuring while section five presents a summary and conclusions.

2.0 ESSENCE AND PRINCIPLES OF ISLAMIC FINANCE FOR INFRASTRUCTURE DEVELOPMENT

Islamic finance is a type of financing activity that must comply with Shari'ah (Islamic Law). The concept also refers to the investment tools that are permissible under Shari'ah. The main essence of Islamic finance is the application of the Shari'ah[3] (Islamic law) which prescribes the ethical, social, and religious norms guiding financial transactions. Central to its philosophy is the prohibition of *riba*[4] (interest), *gharar* (excessive uncertainty), and *maysir* (gambling), and trading in particular items such as pork and alcohol (Wilson, 1998), as well as Sanctity of Contracts where contractual obligations and the disclosure of information are upheld as sacred obligations (Musa & Obadi, 2009). The prohibition of interest is a hallmark of Islamic finance (Iqbal & Mirakhor, 2011). Islamic finance ensures that all financial activities are conducted in a manner that is just, risk-sharing that contributes to the welfare of the community (Usmani, 2002; Ebrahim, 2009; Lewis, 2010; & Alexander, 2011), and the system upholds ethical values in every transaction (Khan & Bhatti, 2008). This ethical framework makes Islamic finance particularly suitable for infrastructure projects, which are long-term in nature and have significant social impact.

Several Islamic financing instruments are available that could be applied to finance the provision of infrastructure investment. These instruments can be grouped as equity-based financing, debt-based financing, and service-based financing (World Bank, 2017). Viewed in terms of contract features, Islamic financial instruments can be divided into profit and loss sharing (PLS) contract-based and debt contract-based (Kettell, 2012). Unlike conventional loans where the borrower bears the interest rate risk, Islamic finance promotes risk sharing between the financier and the beneficiary. This principle aligns with the long-term, capital-intensive nature of infrastructure projects (Siddiqui**,** 2009). Also, Islamic finance requires that all transactions be backed by tangible assets or services, ensuring that investments are directed toward real economic activities. This principle is particularly relevant for infrastructure financing, where funds are used to build or upgrade physical assets (Kahf, 2013). Instead of earning interest on loans, financiers earn returns through profit-sharing arrangements or lease payments, making Islamic finance a viable alternative for funding infrastructure without the burden of compounding interest. Islamic finance emphasizes investments that are beneficial to society and the environment, avoiding sectors that are harmful

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[3] Islamic law (*Shari'ah*) originated from the principles and rules dictated by the Holy *Qur'an* and its practices as well as explanations rendered known as the *Sunnah* by Prophet Mohammad *(May peace be upon him)* (Iqbal, 1997).

[4]

or unethical (Usmani, 2002). Infrastructure projects, by their nature, often align with these goals, providing essential services and improving quality of life.

Sukuk (Islamic bond[5]) is most commonly applied for the long-term mobilization of funds in line with the Shari'ah principles. Thus, *Sukuk*, a plural form of *Sakk*, present an interest-free bond that generates returns for investors without infringing the principles of Shari'ah (Islamic law) which prohibits the payment of interest (World Bank, 2020) and a more accurately, classical translation of the Arabic word would be an 'Islamic Investment Certificate' (Zakaria et al., 2012).

2.1 Sukuk: Meaning and Common Structures Used in Infrastructure Financing

Islamic finance offers several instruments for structuring infrastructure financing, each with unique characteristics that comply with Shari'ah principles. Sukuk are known as an Islamic capital market instrument and its issuance lies in Islamic Shari'ah and its principles (Ries Ahmed et al., 2015). According to Usmani (2008) Sukuk (Islamic bonds) represent a significant instrument in Islamic finance for raising capital for infrastructure projects. Unlike conventional bonds which are purely debt instruments that yield interest, Sukuk are structured as certificates that provide investors a share of an asset, along with the cash flows and risks associated with it. According to the IDB (2000), Sukuk are investment instruments that allocate the (*muqarada*) capital (Mudarabah) by floating certificates, as evidence of capital ownership, on the basis of shares of equal value, registered in the name of the owner, as joint owners of shares in the venture capital or whatever shape it may take, in proportion to (…) each one's share therein. Further, the Accounting and Auditing Organization for Islamic Financial Institutions (Shari'ah Standard No. 17 on Investment Sukuk, 2012) defines Sukuk as "certificates of equal representing undivided shares in ownership of tangible assets, usufructs, and services or (in the ownership of) the assets of particular projects or special investment activity."

AAOIFI recognizes fourteen different Sukuk structures; Al Musharakahh Sukuk; the Al Ijarah Sukuk; Al Murabahah Sukuk; Al Mudharabah Sukuk; Al Istisna Sukuk; As Salam Sukuk; and several hybrids. While some are not suitable for infrastructure financing, several of them are, including *Istisna, Ijarah, Ijarah mawsufah fi al-dhimmah*, *Mudharabahh/ Musharakahh,* and *Salam*, and *Wakalah*, and hybrid, that is, combinations of some known Sukuk structures (CIBAFI, 2020) & (Ayub, 2019).

Sukuk are generally divided into two categories, that is, based on the nature of the ownership rights transferred to the investors: asset-backed sukuk and asset-based sukuk. Invariably, all international sovereign Sukuk are asset-based, i.e. unsecured and sovereign Sukuk are also often asset-backed. Under an asset-backed Sukuk structure, the government simply transfers both legal and beneficial ownership over the assets to Sukuk holders through a Special Purpose Vehicle (SPV), whereas in an asset-based structure, the government only transfers beneficial ownership over the assets to Sukuk holders via the SPV. The following Table explains the basic difference between the two.

[5] For differences between Sukuk (Islamic bond) and Conventional bond see Appendix I.

Table 1: Basic Differences Between Asset-Backed and Asset-Based Sukuk

Item	Asset-backed Sukuk	Asset-based Sukuk
Ownership rights transferred	Legal and beneficial (economic) ownership	Beneficial (economic) ownership only
Process	Securitization of tangible assets	Securitization of receivables generated from the assets
Accounting for the asset	Assets are shifted to the balance sheet of the SPV (true sale)	Assets to remain on the balance sheet of the government
Recourse	Recourse only to the underlying assets	Recourse only to the government as an obligor
The primary risk for investors	Assets will not generate expected cash flows/returns	The government may default on payment obligations
Valuation	Based on liquidation value and/or cash flows of the underlying asset	Based on the credit status of the government

Source: Embracing sovereign Sukuk: Demystifying Shari'ah-compliant by Alvarez and Marshal Sovereign Advisory Services, 2024.

In line with the AAOIFI categorization and for this chapter, we take a few of them as follows:

2.1.1 Sukuk Al-Ijarah

Ijarah is a type of shari'ah-compliant lease contract where one party purchases the property and then leases it to another entity for an agreed duration in exchange for an agreed rental fee. Accordingly, under the Ijarah contract, certain obligations on how to maintain and insure the asset have to be agreed upon. As such, the parties often enter into a separate service agreement, under which the lessee assumes responsibility for maintaining and insuring the property. At its core, Ijarah translates to leasing or rent in Islamic jurisprudence. Sukuk Al-Ijarah allows issuers to raise funds from investors through the sale of Sukuk certificates, which represent ownership shares in leased assets. Unlike conventional bonds that yield interest, Ijarah Sukuk generates returns for investors through the leasing of assets, aligning with the Islamic prohibition of Riba (interest) (World Bank, 2017).

The structuring process of Ijarah Sukuk involves several key steps. The first step entails identifying tangible assets, such as real estate or equipment, which will be leased to generate revenue. These assets must be specified and Shari'ah-compliant, avoiding prohibitions like alcohol or gambling industries. An SPV is established to facilitate the transaction, acting as the intermediary between investors and the original asset owner (lessee). The SPV acquires the asset from the lessee and then issues Sukuk certificates to investors, transferring asset ownership to them. The SPV leases the asset back to the original owner or a new lessee, who agrees to make regular rental payments for the use of the asset. These payments are then distributed among Sukuk holders as returns on their investments. Upon maturity of the Sukuk, the lessee has the option to purchase the asset from the SPV, transferring ownership back to the lessee or a third party, as agreed in the lease contract.

Ijarah Sukuk serves as an effective tool for financing various types of infrastructure projects, including but not limited to transportation networks, energy plants, and educational facilities. It provides several benefits. By tying returns to the performance of the leased asset, both issuers and investors share the underlying risks and rewards, promoting risk mitigation and financial stability. Investors are assured by the tangible nature of the assets underlying Ijarah Sukuk, offering a layer of security absent in many conventional financial instruments. Ijarah Sukuk opens the door for Islamic investors to participate in infrastructure financing, expanding the market base and potentially lowering financing costs for project developers. Aligning with Islamic principles encourages investment in projects with positive social, environmental, and economic impacts, fostering sustainable development. Sovereign Sukuk across several jurisdictions, including Nigeria adopt the Sukuk Al-Ijarah structure. This is depicted as follows:

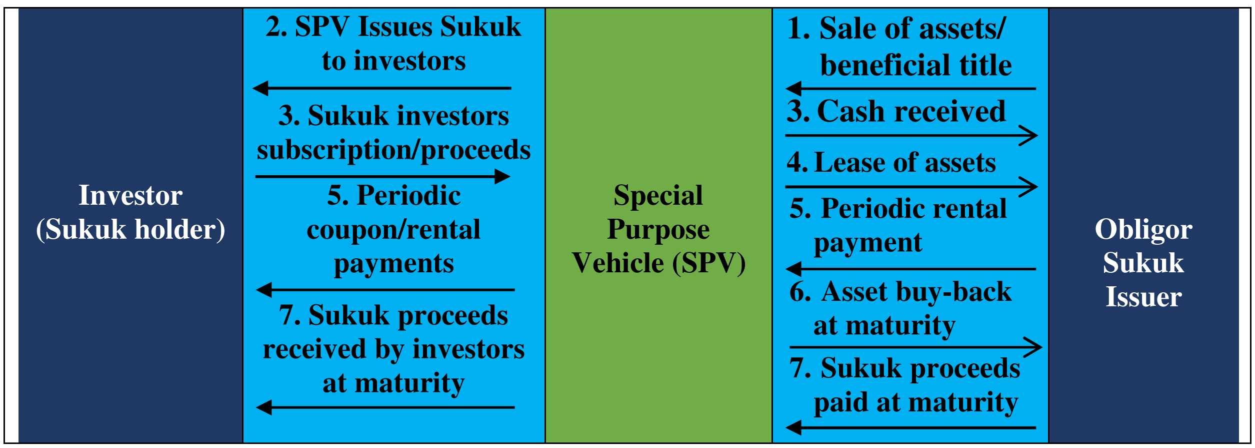


Figure 1: Sukuk Al-Ijarah Structure

Despite its advantages, structuring Ijarah Sukuk faces challenges, including legal and regulatory hurdles in different jurisdictions, the complexity of asset valuation and Sukuk structuring, and the need for standardized practices to enhance global acceptability and liquidity. The International Islamic Financial Market (IIFM) plays a crucial role in addressing the challenges associated with Islamic Capital Market challenges including Ijarah Sukuk, contributing significantly to the standardization, harmonization, and development of the Islamic financial services industry globally.

2.1.2 Sukuk Al- Mudharabah

Mudharabah is a profit-sharing partnership to undertake a particular business or investment activity. Under this contract, one party (the *rab-al-maal*) provides capital, and the other party (the *mudharib*) provides the managerial or technical knowledge to utilize the capital in service of a profit-seeking venture. The *rab-al-maal* and the *mudharib* share profits according to a pre-agreed ratio. The *rab-al-maal* bears all downside risk since the *mudharib* does not contribute any capital. This instrument is particularly used to raise funds for various projects or business ventures in a Shari'ah-compliant manner, adhering to the principles of profit and loss sharing.

Structuring Mudharabah Sukuk involves several key steps, after collecting for subscription, the SPV transfers proceeds from the sukuk issuance to the government. The government then invests that cash in one or more public projects. In this case, the SPV serves as the rab-al-maal, and the government serves as the *mudharib*. This structure ensures the segregation of assets and liabilities related to the Sukuk issuance from the issuer's balance sheet. The funds raised through the Mudharabah Sukuk are then invested in a specific project or venture according to the terms agreed upon in the Mudharabah contract. The project or venture should be clearly defined and Shari'ah-compliant, avoiding prohibitive activities under Islamic law. This ratio must be determined at the outset and cannot be guaranteed or fixed, reflecting the principle of profit and loss sharing intrinsic to Mudharabah. The SPV periodically receives a share of the profits generated from these projects, which it distributes to the Sukuk holders. At the dissolution date, the government (*mudharib*) liquidates its investment portfolio and transfers a share of the proceeds to the SPV (rab-al-maal), which in turn distributes that money to investors as a dissolution payment. In the event of a loss, it is borne solely by the investors, unless the loss is due to misconduct or negligence by the issuer. The capital provider's (investors') risk of loss underscores the risk-sharing feature of Mudharabah Sukuk.

Mudharabah Sukuk offers several advantages, including access to Shari'ah-compliant financing for project managers and investment opportunities for investors seeking ethical and potentially profitable ventures. It encourages entrepreneurship and resource mobilization by linking capital with expertise. However, challenges include the need for clear agreements on profit distribution and project management, ensuring transparency and trust between the parties, and managing the risk of loss.

2.1.3 Sukuk Al-Murabahah (Cost-Plus Financing)

Murabahah refers to an arrangement to purchase goods for a particular price and then resell them at a margin of profit agreed by the parties, otherwise cost-plus. Therefore, *Sukuk Al-Murabahah* are certificates issued to finance the purchase of goods through the Murahabah contract. The assets underlying this form of *Sukuk* are the goods that the *Sukuk* proceeds help to acquire or purchase. The SPV under *Sukuk Al-Murahabah* uses the *Sukuk* proceeds to purchase commodities on a spot basis from a vendor/supplier and then sells those commodities to the government, that is, the originator. The government pays the spot price plus a profit margin, which is payable in periodic installments (Ayub, 2007). Murabaḥah is less frequently utilized for infrastructure finance which demands long-term financial commitments. Infrastructure project financiers often favor a variable markup in pricing over the duration of Public-Private Partnerships (PPPs) due to their extended financing requirements, a flexibility Murabaḥah does not offer (World Bank, 2017).

For instance, in financing the acquisition of gas turbines for a power generation facility, an Islamic financier might employ Murabaḥah to sell the equipment to the project's Special Purpose Vehicle (SPV). Contrary to Ijarah, in Murabaḥah, the ownership of the equipment is immediately transferred to the SPV, thereby more effectively addressing the issue of shared security among lenders. Meanwhile, although the Ijarah framework permits Islamic financiers to collect variable rental payments (akin to variable interest rates conventional financiers might impose on the same project), Murabaḥah and certain other Islamic financing mechanisms restrict Islamic financiers to receipt of only a fixed price from the SPV, paralleling the fixed interest rates charged by conventional lenders.

The Murabaḥah and Ijarah financing structures are well-suited for transactions involving existing assets. For greenfield infrastructure projects, where assets need to be constructed, these structures become applicable only after the project's construction phase is completed. This means that Murabaḥah and Ijarah can be used for financing once the infrastructure assets have been constructed and are operational. In the context of Public-Private Partnerships (PPPs), where there is often a requirement for the project or assets to be transferred back to the government at a certain point, these Islamic financing structures provide viable options. The government has the flexibility to acquire the infrastructure asset back through a murābaḥah transaction or to enter into an Ijarah agreement for its use.

Shari'ah principles (AAOIFI Sharia Standard No. 17, 5/2/15) prohibit secondary market trading of Sukuk Al-Murabahah after the commodities have been transferred to the government purchaser. At that point, the certificates represent a debt of the government to the *Sukuk* holders. Trading these assets would therefore amount to trading in debt on a deferred basis and would contravene Islam's prohibition of *riba*.

2.1.4 Sukuk Al-Wakalah

The concept of *Wakalah* refers to an agency agreement whereby one party (Muwakkil) assigns another party (the *Wakil*) to invest capital on its behalf. Hence, *Sukuk Al-Wakalah* are certificates issued to raise capital that is subsequently invested, under a *Wakalah* agreement. The assets underlying this form of *Sukuk* are those purchased by the *Wakil* using the *Sukuk* proceeds. The Wakala agreement which shall be signed by parties, often between the SPV and the originator or government, should include the provisions that deal with (i) the appointment of the Wakil; (ii) the compensation for the Wakil; (iii) the duties of the Wakil; and (iv) the details of the subject matter of the Wakalah, that is, Wakalah assets. Also, the Wakalah contract should state the duration of the Wakala, the amount of investment (if any), and under what conditions it will terminate. Concerning remuneration, any profit above the agreed-upon profit will be kept by the Wakil as a performance or an incentive fee. It is on the basis that a Sukuk Al Wakalah is structured.

In the particular case of sovereign Sukuk Wakalah, the government is the originator. At the onset, the originator establishes the SPV which issues Sukuk certificates to investors. Independently, the SPV enters into a Wakalah arrangement with the originator and appoints the originator as a Wakil. The Wakil will remit back to the SPV the pre-agreed amount from the profits earned which will be used to pay the periodic distribution to the investors. Any excess from the profit amount will be for the Wakil to keep as an incentive fee.

Equally, the SPV and the originator will enter into a purchase undertaking for the purchase of a portion of or all of the Wakalah assets by the originator to safeguard the investors' interest. The exercise price under the undertaking will be equal to the dissolution amount that is payable to the Sukuk holders. Mostly, the right to require the obligor to purchase the Wakalah assets may be exercised if the SPV does not have sufficient profits to make the periodic distribution amount, if there is a default under the Sukuk transaction, or on the maturity date of the Sukuk. The SPV may require the originator to act as the guarantor (the "Guarantor") for the amounts due under the Sukuk where he will be obligated to make up any shortfall between the amounts collected from the Wakala assets and the amounts due to the investors, whether at dissolution or the periodic distribution payments

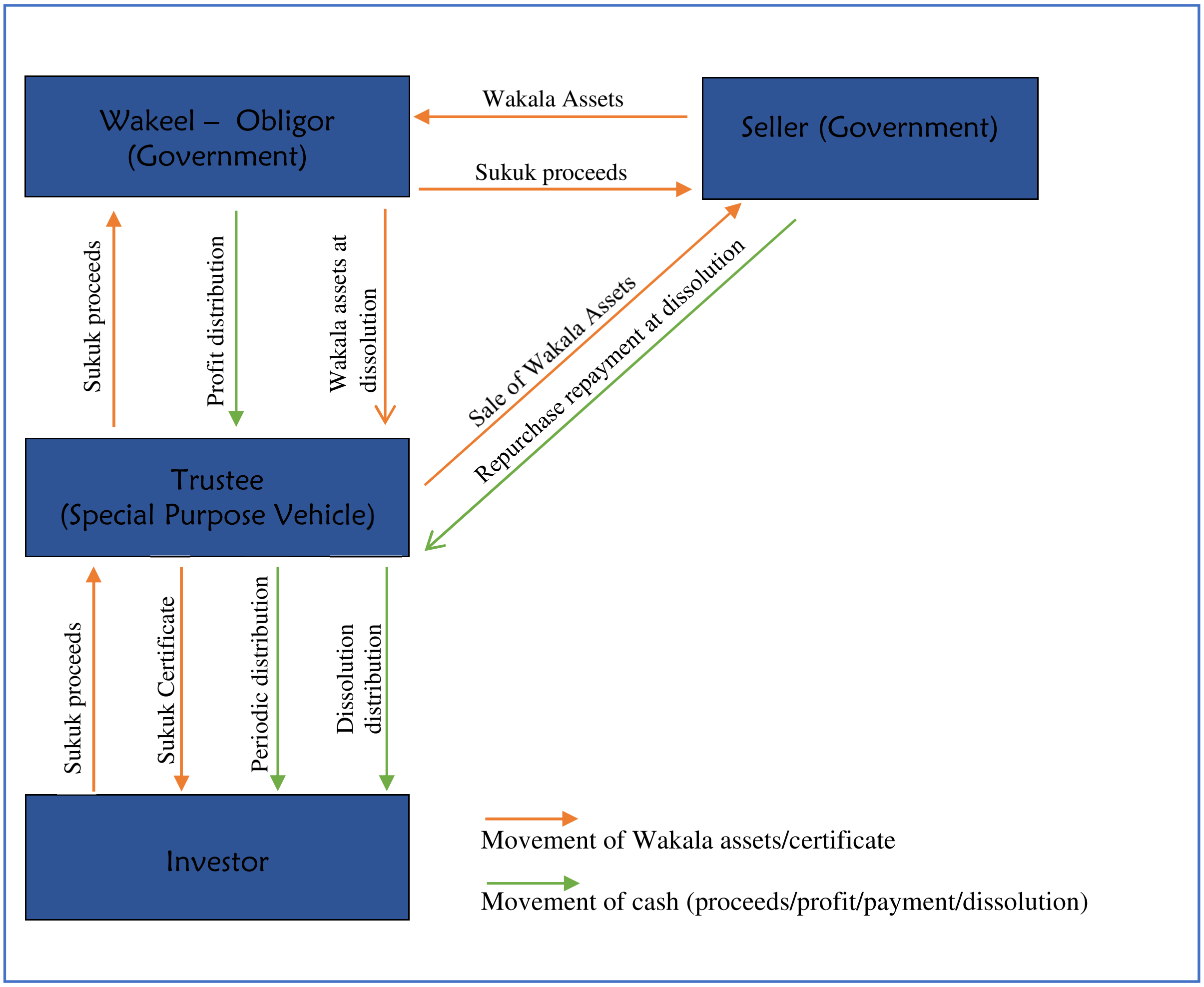


Figure 2: Wakalah Sukuk Structure

2.2 Application of Sukuk in Project Financing

The varied Sukuk structures allow for a project-specific treatment of different investment needs of the project originator or an obligor. Among these, the Sukuk Istisna'a structure allows for the advance funding of real estate development, major industrial projects, or large items of equipment such as turbines, power plants, ships, or aircraft (construction/ manufacturing financing). Sukuk Al-Salam allows for the mobilizing of funds for goods, often agricultural produce, to be delivered in the future. Musharakah and Mudharabah are trustee partnerships suited for PPP arrangements, etc.

2.2.1 Istisna'a (Project Financing)

Istisna'a is a contract used specifically for manufacturing or construction projects, making it highly relevant for infrastructure financing. In an Istisna'a agreement, the financier agrees to fund the construction of the project, with payment to the contractor being made in installments based on project milestones or upon completion. This arrangement is suitable for infrastructure projects that require significant time for completion, providing flexibility in financing terms and ensuring project progress aligns with payments (Warde, 2010).

Islamic finance professionals employ istiṣnā‘ for medium to long-term dealings. Acting as a buyer, the financier designates the SPV (Special Purpose Vehicle) to act on its behalf, thereby making the SPV the asset's owner once it's built by an EPC (Engineering, Procurement, and Construction) contractor. Upon the asset's completion and approval by the financier, the ownership is then transferred from the financier to the SPV. The SPV, in turn, repays the financier of the asset's sale price through scheduled payments, aligning with Islamic financing principles.

2.2.2 Musharakah (Partnership Financing) and Mudharabah (Trust Financing)

Musharakah and Mudharabah are partnership-based financing instruments that can be applied to infrastructure projects. In a Musharakah arrangement, both the financier and the project owner contribute capital and share profits and losses. This is suitable for large-scale projects where risk and reward can be distributed among multiple parties. Within an infrastructure PPP project, utilizing a Musharakah arrangement, both the Islamic Finance Institution (IFI) and the customer (equity investors) contribute to the SPV designated for the project. For instance, the government might supply the land for the infrastructure construction and set forth all necessary legal and regulatory frameworks, while the private sector would bring in the financing, expertise, and construction capabilities. Unlike employing a Murabaḥah structure to sell the asset to the government post-construction, or an Ijarah arrangement to lease it back following construction, a Musharakah model means both parties stay actively involved in the project, sharing both the profits and losses that emerge from it.

Cashflow considerations are important in using the Musharakah mode of infrastructure financing. Given that a public highway may not consistently produce direct cash flow, in contrast to utilities, power plants, or toll roads, it's crucial to evaluate the potential cash flows linked with the project. In the context of a PPP transaction, Musharakah arrangements can be relevant during the operational phase. This ongoing partnership model emphasizes the need to minimize project risks in infrastructure PPPs (World Bank, 2017). Development banks can play a key role in reducing these risks by facilitating Islamic financing for PPP projects.

Mudharabah involves a financier providing capital to a project manager, who manages the project with profits being shared according to a predetermined ratio, while losses are borne by the financier unless due to negligence or violation of terms by the manager (Saeed, 1996). Under a Muḍharabah agreement, an Islamic bank can take on the role of the muḍārib, or manager, whereas other Islamic financial entities or investors can allocate their capital towards infrastructure projects that the muḍārib identifies for investment. The muḍārib is responsible for performing thorough due diligence to assess the financial feasibility of potential investment projects. The muḍārib needs to guarantee that the financing is allocated exclusively to ventures that comply with Shari‘ah principles.

2.3 PPP and BOT Arrangements Using Islamic Finance

Public-private partnerships (PPP) and Build-Operate-Transfer (BOT) financing mechanisms can be effectively structured within the framework of Islamic finance through the use of various Shari’ah-compliant contracts. These arrangements allow for the collaboration between public entities and private investors to fund, build, and operate infrastructure projects in a manner that adheres to Islamic finance principles. PPPs can be structured using Islamic finance contracts such as Ijarah (leasing), Istisna’a (construction finance), and Musharakah (joint venture).

2.3.1 Application of Ijarah

The public sector entity (government) partners with a private sector entity (investor or consortium) to finance a public infrastructure project. The private partner finances the construction of the asset and leases it back to the government or public entity under an Ijarah contract. The government makes periodic lease payments to the private partner for the use of the asset during the lease period. At the end of the lease term, the asset may be transferred back to the government at a predetermined or nominal value, or the lease can be renewed. Figure 1 outlines the relationship between the investors and the government as an obligor coordinated by the SPV.

The Ijarah contract could also be applied under the BOT arrangement. Suppose an infrastructure is put in place using either an Istisna’a or Musharakah contract, the SPV could lease the infrastructure to the government or a private operator under an Ijarah contract. The lessee (government) makes periodic payments to the SPV for the use of the facility which will be distributed to the investors. Upon expiration of the lease term, ownership of the asset is transferred to the government, completing the BOT arrangement.

2.3.2 Application of Istisna’a

Istisna’a contracts are specifically useful for infrastructure projects that need to be built or manufactured. The government, for instance, enters into an Istisna’a agreement with a private developer to construct the infrastructure. Payment to the developer can be made in installments linked to project milestones or upon completion. Upon completion, the project can be leased back to the government using an Ijarah contract for the operational phase. It has been found for instance, that an *Istisna* contract for the provision of infrastructure holds the financier liable for the assets being produced and hence encourages putting in place strong environmental and social safeguard measures (Diallo & Gundogdu, 2021).

2.3.3 Application of Musharakah

In a Musharakah-based PPP, both the government and the private sector contribute capital to a joint venture established specifically for the project. Profits and risks are shared according to their respective investment shares. The project company operates the infrastructure for a defined period, after which ownership can be transferred to the government.

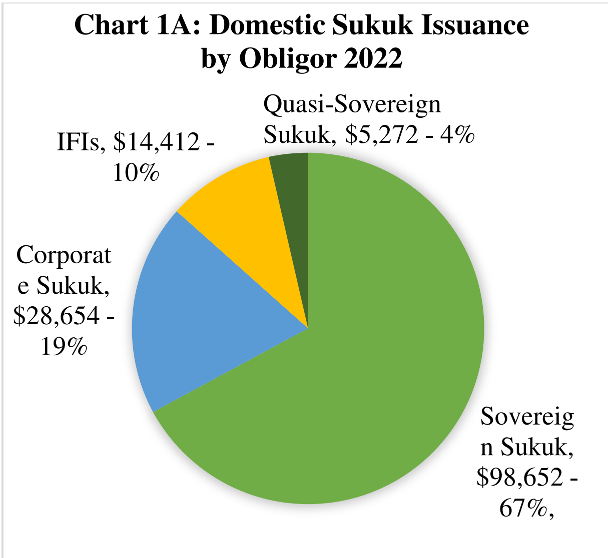
Under the BOT arrangement, the SPV is created as a joint venture (Musharakah) between the government and private investors. The SPV is responsible for the construction, operation, and maintenance of the infrastructure project. Investment and profits are shared according to agreed proportions, and the operational risks are managed by the SPV. After a specified operational period, the project is transferred to the government.

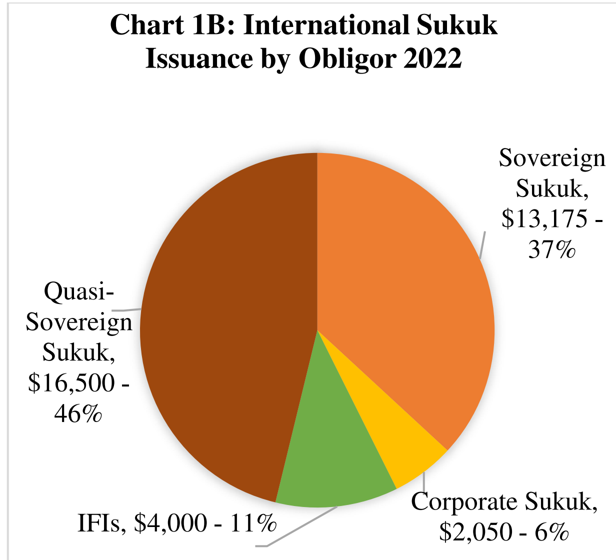
Thus, the Islamic finance structures for PPP and BOT projects not only comply with Shari'ah principles but also offer innovative ways to finance and execute large-scale infrastructure projects. They provide mechanisms for risk-sharing, asset-backed financing, and ethical investment, aligning with the economic development goals of Islamic finance while addressing the infrastructure needs of communities.

3.0 GLOBAL INFRASTRUCTURE SUKUK TRENDS

Sukuk debuted by the Government of Sudan in 2000 worth LS77 million based on the Musharakah structure was followed by Bahrain's first US-dollar-denominated Ijarah Sukuk, worth USD100 million by the Central Bank of Bahrain in 2001 (Salah & Saeed, 2014). Since then, Sukuk has grown in structure and stature and is recognized as the main Islamic finance instrument for boosting economic growth (Lahsasna et al., 2018; & Al-Ali, 2019). For instance, according to the International Islamic Liquidity Market (IIFM) (2022), 38 countries issued Sukuk worldwide, till December 2020. Evidence further shows that the total number of domestic Sukuk issued globally stood at 13,472 between January 2001 and December 2022 valued at USD 1.374 trillion (IIFM, 2023). In the year 2023 alone, the total volume of Sukuk issued globally increased to $214.9 billion, marking a 9.9% rise compared to 2022 (Refinitiv, 2024). The cost to governments of financing using Sukuk is often lower than that of financing from conventional international sovereign bonds and this is especially so for sovereigns with lower credit ratings and higher borrowing costs which suggests that such countries may have better opportunities to tap sovereign Sukuk for their financing needs (Alvarez & Marshal Sovereign Advisory Services, 2024).

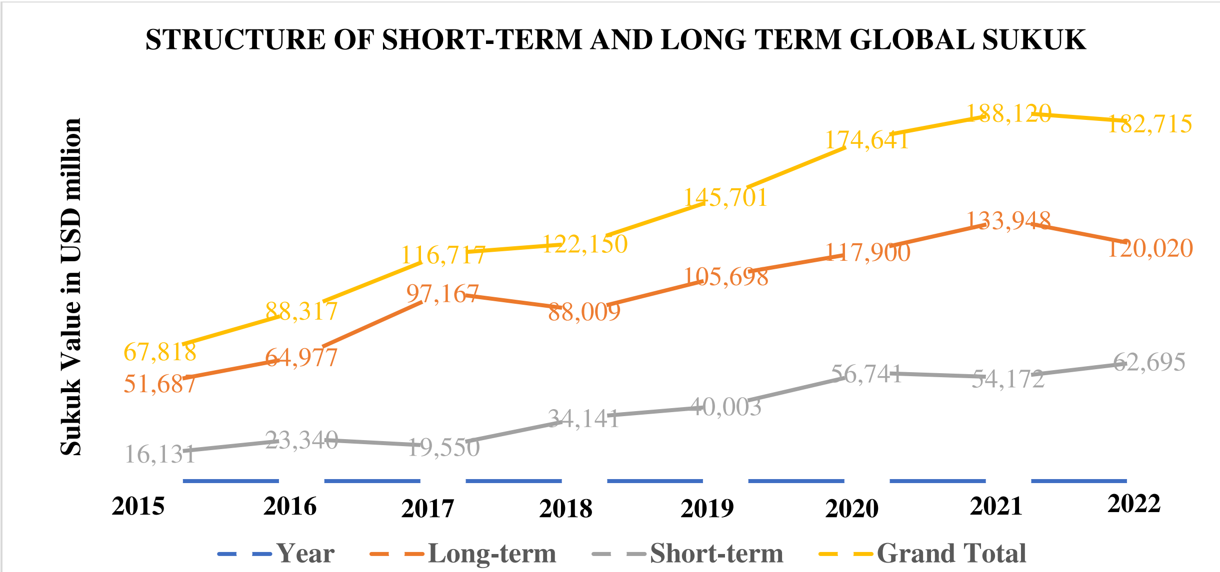
Spatially, the Asian continent and the Middle East constitute the dominant global Sukuk centers. Evidence, for instance, shows that Malaysia alone accounted for 85.4 percent (9,134) of the total domestic Sukuk issued in the Asian region between 2001 and 2022 while the Islamic Development Bank (IsDB), a supranational Sukuk issuer, accounted for 30.5 percent (246) international Sukuk issuances valued at USD 127,311 (Aliyu, 2024). In addition, the anatomy of domestic and international Sukuk by obligor status in 2022 is presented in Charts 1A and 1B, respectively.





Source: Aliyu, S.U.R. (2024). Infrastructure Deficit in Africa: Islamic Finance as a Gap-filler, *Working Paper* submitted to the African Export-Import Bank (Afreximbank) as part of the Sabbatical Research Fellowship Report, April 2024.

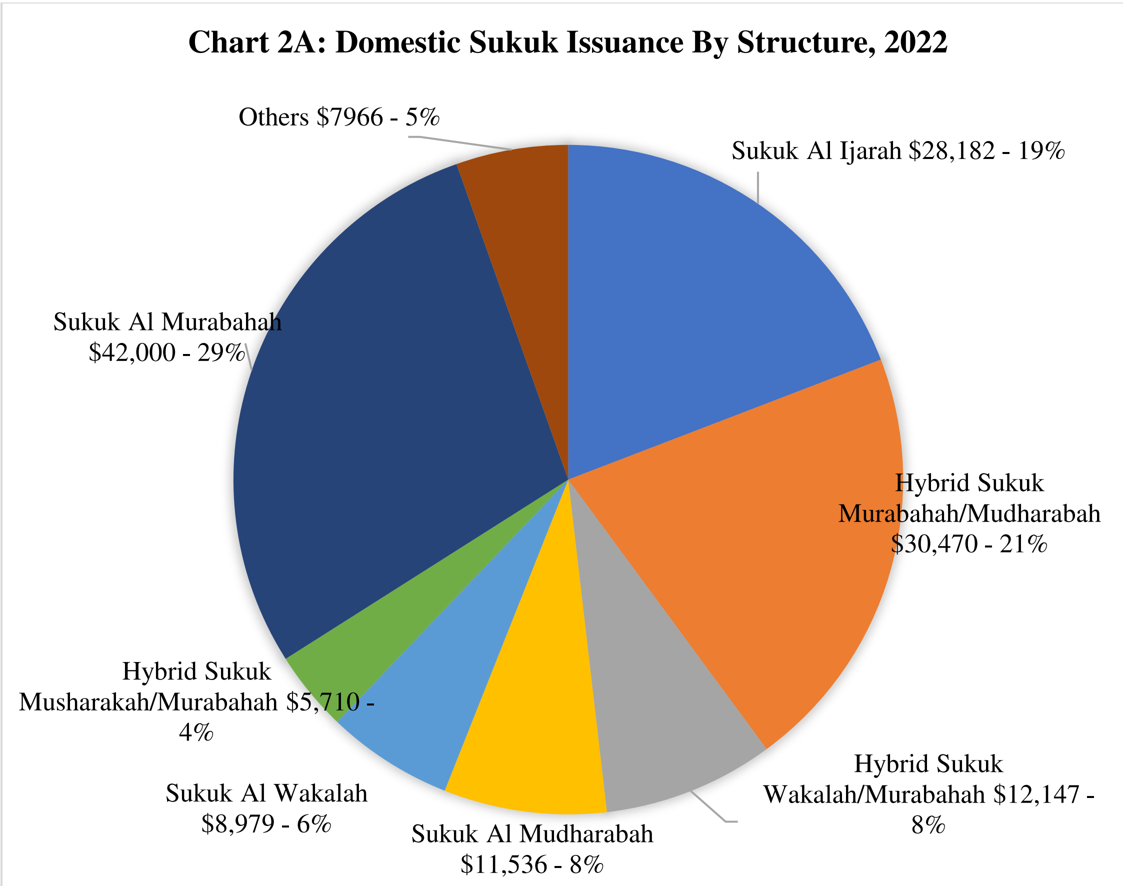
Both ways, sovereign Sukuk issuances by governments accounted for 67 percent and 37 percent, respectively. Mammoth issuances by the IsDB, quasi-sovereign Sukuk, accounted for 46 percent. Issuances by other obligors, Corporate Sukuk, and Islamic Finance Institutions (IFIs) featured prominently in both domestic and international issuances. Similarly, global Sukuk issuance showed a single-digit growth of 7.17 percent or USD 174.641 billion to USD 188,120 billion between 2020 and 2021 but decelerated by 2.9 percent, that is, USD 182,715 in 2022, as depicted in Figure 2. It is evident that long-term Sukuk remained robust and maintained steady growth since 2015 except in 2022. Specifically, despite the Covid-19 pandemic, steady sovereign Sukuk issuances were recorded in 2021 in Asia, GCC, Africa, and other jurisdictions. Malaysia continued to dominate the Sukuk market while bourgeoning issuances from countries like Indonesia, UAE, Saudi Arabia, and other countries, were also remarkable during the years between 2021 and 2022.



Source: Computed by Authors using data from the International Islamic Financial Market (IIFM) Sukuk Report 2023.

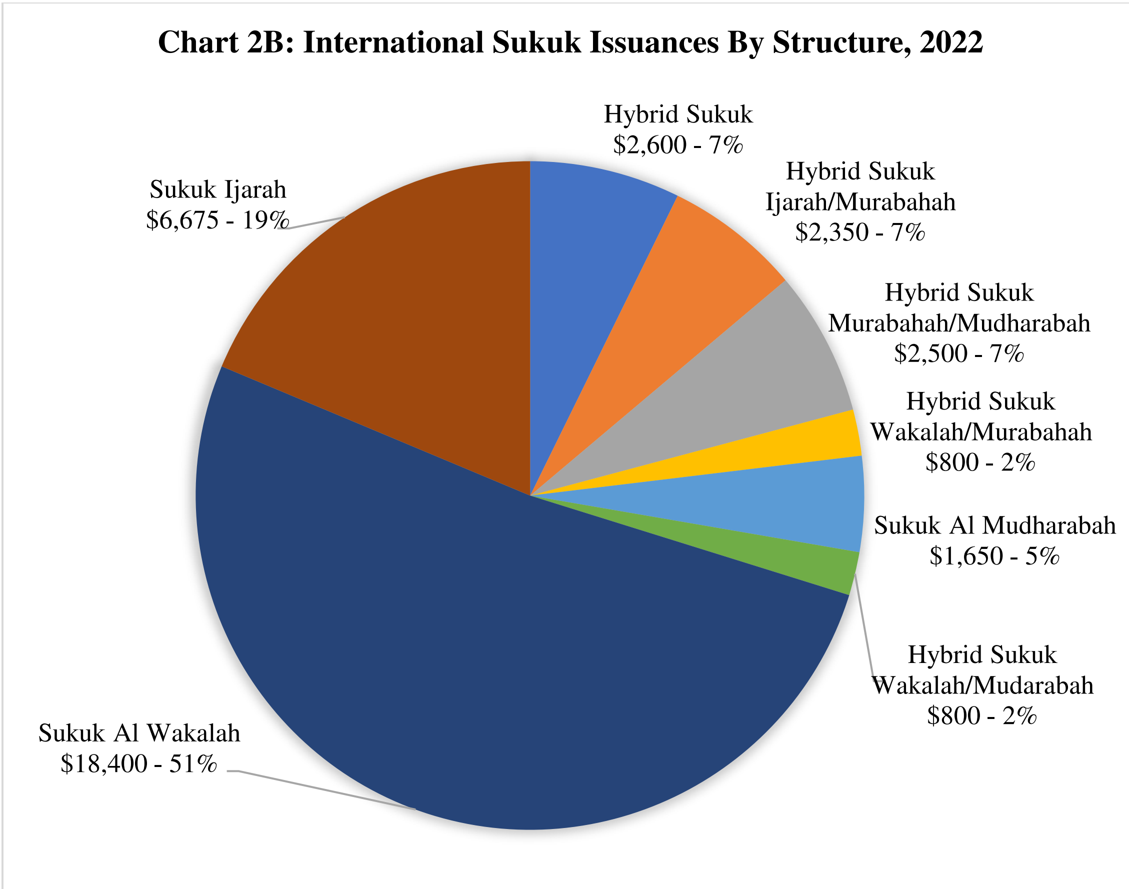
Figure 2: Structure of Short-term and Long-term Global Sukuk

In another development, infrastructure Sukuk issuances follow the structures identified in the preceding section. Accordingly, Charts 2A and 2B, demonstrate the anatomy of domestic and international Sukuk issuances in 2022. Chart 2A shows that Sukuk Al Murabahah, Hybrid Sukuk Murabahah/Mudharabah, and Sukuk Al Ijarah domine with 29 percent, 21 percent, and 19 percent, respectively. Among the high-profile domestic sovereign Sukuk issuances in 2022 are the Government of Indonesia whose total issuance (Sukuk Al Ijarah) stood at the tune of USD 18,187 million, the Government of Malaysia USD 67,624 million Sukuk Al Murabahah, and the Government of Nigeria USD 369.41 million Sukuk Al Ijarah (IIFM, 2023). At this juncture, the Nigerian domestic sovereign Sukuk with a total of six issuances totaled ₦1,092.557 billion (US$1.43 billion), since 2017.



Source: Aliyu, S.U.R. (2024). Infrastructure Deficit in Africa: Islamic Finance as a Gap-filler, *Working Paper* submitted to the African Export-Import Bank (Afreximbank) as part of the Sabbatical Research Fellowship Report, April 2024.

Similarly, in line with the Wakalah Sukuk structure outlined in Figure 2, evidence depicted in Chart 2B shows that the Wakalah structure is the most widely applied in international Sukuk issuances. IIFM (2023) discloses that between January 2010 and December 2020, for instance, the total value of Sukuk Al Wakalah issued stood at USD 148,068 million, which is equivalent to 52 percent. Again, Sukuk Al Wakalah accounts for 51 percent of international Sukuk issuances in the year 2022 with a total value of USD 18,400, followed by Sukuk Ijarah with 19 percent (USD 6,675). Other structures, as depicted in the Chart were applied at different levels as well based on market needs and investors' appetites. Sukuk Al Wakalah is often structured in the form of hybrid Ijarah/Murabahah which provides more flexibility, and the issue of shortage of available assets is lessened (IIFM, 2022).

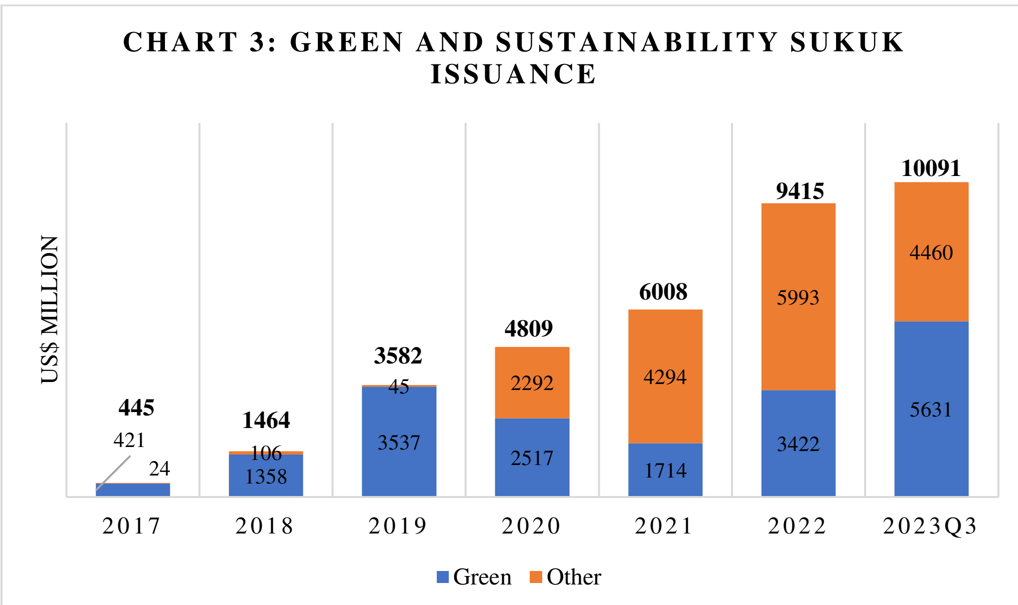


Source: Reproduced by the Author based on data from the International Islamic Financial Market (IIFM) Sukuk Report 2023.

Developments in the Islamic capital market led to the emergence of green and sustainable Sukuk in 2017 (Liu & Lai, 2021). Green Sukuk are Shari'ah-compliant investments in renewable energy and other environmental assets that invariably address the Shari'ah concerns for protecting the environment and green bonds have gained popularity as a financing instrument for green infrastructures such as renewable energy, green buildings, and low carbon transportation, with more recent and notable growth of emerging economies in green bond markets (CBI, 2018). Liu and Lai (2021) found an emerging trend in the international adoption of green *Sukuk* for sustainable and green financing of infrastructure. Thus, Islamic finance and Environmental and Social Governance (ESG) share complementary roles, and given its social, moral ethos, and asset-backed nature, Islamic finance offers an alternative funding option for sustainable development activities and projects that are aligned with the former's initiatives (Ahmed et al., 2015; Bennett & Iqbal, 2013; Obaidullah, 2017; RFI, 2018; Refinitiv, 2022). The composition of the ESG-based Sukuk includes Green Sukuk (renewable energy and transportation), Social Sukuk (affordable infrastructure, affordable housing, employment generation, workforce diversity), Sustainability Sukuk (combination of green and social, projects), SDG-linked Sukuk (issued based on issuer's commitment to SDG objectives), Transition Sukuk (reducing issuer's carbon emission, and Blue

Sukuk (sewage treatment and ocean conservation). Recently, the United Kingdom Islamic Finance Council (UKIFC) estimated that green and sustainable Sukuk could raise between $30 - $50 billion of capital for the SDGs by 2025.

Chart 3 presents the levels of green and other sustainability Sukuk (ESG) issued between 2017 and 2023Q3. The trends show that despite continued breezes, ESG sukuk issuance totaled $10,091 million in the first nine months of 2023, exceeding the full-year total of $9,415 million for 2022. Notwithstanding, ESG Sukuk made up 1.6 percent of total ESG bond issuance and 6.8 percent of total Sukuk issuance in the first nine months of 2023.



Source: UKIFC (2023). Financing a sustainable future, Green and Sustainability Sukuk update 2023.

The general performance in the overall Sukuk trends could be attributed to several factors, notably a 43 percent increase in ESG Sukuk, alongside significant issuances from countries not traditionally associated with these Islamic financial instruments, including Egypt, the Philippines, South Africa, and the United States. Additionally, the Saudi government undertook the refinancing of $9.6 billion worth of its domestic Sukuk scheduled for maturity between 2024 and 2026. Malaysia has the highest amount of Sukuk outstanding as of the end of 2023 with USD 312.9 billion, followed by Saudi Arabia and Indonesia with US$ 254.4 and US$99.3, respectively.

On its part, the IIFM is playing a crucial role in addressing the challenges associated with Ijarah Sukuk, contributing significantly to the standardization, harmonization, and development of the Islamic financial services industry globally. Established to enhance the Islamic financial market's infrastructure and promote efficient Islamic capital markets, the IIFM undertakes several initiatives that directly impact the structuring, issuance, and trading of Ijarah Sukuk.

3.1 The Nigerian Sukuk

Nigeria's Sukuk has since its inception in 2017 been for infrastructure development which involves the construction and rehabilitation of 25 roads across the six geopolitical zones in the country. The first Nigerian Sukuk was issued by the FGN (Federal Government of Nigeria) Roads Sukuk Company which serves as the Special Purpose Vehicle (SPV) on behalf of the Federal Government of Nigeria. According to the Debt Management Office (DMO) (2017), Sukuk offer ethical investors an opportunity to invest in government-issued security which invariably promotes financial inclusion and help to diversify the sources of government funding of economic infrastructure. The Nigerian Sukuk further serves as a reference for pricing Sukuk issued by other bodies, especially private sector issuers. Table 2 on Sukuk issuances in Nigeria shows that the 2017 FGN Sukuk of N100 billion was set to mature in September 2024 (7 years tenor) and attracted a rental fee of 16.47 percent payable semi-annually. The Sukuk was structured as a Sukuk Al-Ijarah and certified by the Financial Regulatory Advisory Council of Experts (FRACE) of the Central Bank of Nigeria. The DMO (2018) observes that the Sukuk have incentivized the contractors to accelerate work on the selected roads because of the confidence that the Government had dedicated funds already in place to pay them upon completion of milestones.

Table 2 further shows that the third Nigeria's sovereign Sukuk valued at N150 billion was highly oversubscribed by 446 percent which came from a wide range of investors; Ethical Funds, Insurance Companies, Fund Managers, and Retail Investors amongst others (DMO, 2020). After closing the subscription, the sum of N162.557 billion only was allotted to investors, and proceeds from the third issuance were allocated for financing 44 critical Road Projects across the Six (6) Geopolitical Zones of Nigeria. Further, the fourth, fifth, and sixth sovereign Sukuk were highly oversubscribed by up to 346 percent, 165 percent, and 435 percent, respectively. After closing the subscription, the DMO upsized the Sukuk amounts to 250 billion, 130 billion, and 350 billion, respectively.

Table 2: Sukuk Issuances in Nigeria

Sukuk Tranche	Actual Subscription	Extent of over-Subscription
1st Issuance, September 14, 2017 – 2024 @ 16.47%	N100 billion	N105.88 billion (5.87%)
2nd Issuance, December 6, 2018 – 2025 @ 15.74%	N100 billion	N132 billion (32.0%)
3rd Issuance, May 21, 2020 – 2027 @ 11.2%	N150 billion	N669.124 billion (446%)
4th Issuance, December 23, 2021 – 2031 @ 12.8%	N250 billion	N865 billion (346%)

5th Issuance, November 21, 2022 – 2032 @ 15.64%	N100 billion	N130 billion (165%)
6th Closure, October 11, 2023 – 2032 @ 15.64%	N150 billion	N652.827 sukuk issuances in Nigeria billion (435%)

Source: Ranjib Metric Solutions Consult Ltd, 2022 ranjibmetric.2019@gmail.com

Thus, with the sixth Sukuk issuance, the Federal Government of Nigeria through the DMO has raised about N1.092 trillion, which was applied to facilitate the construction and rehabilitation of over 4000 kilometers of roads and bridges in Nigeria across the country (DMO, 2023). The DMO declared that the FGN sovereign Sukuk will be listed on both the Nigerian Exchange Group (NGX) Plc, formerly the Nigerian Stock Exchange (NSE), and the Financial Markets Dealers Quotation (FMDQ) Securities Exchange Plc.

Aside from the deepening of trading activities in Nigeria's capital market, the benefits from Sukuk Issuances for infrastructure, construction, and rehabilitation of roads, the development accords faster travel times, access to markets for farm produce, and opening up parts of the country for development. Other important benefits of using Sukuk to finance road projects are job creation and increased level of activity for service providers, many of whom are small businesses (DMO, 2023).

Box 3.1: Sukuk Prihatin Malaysia

Background: The Malaysian government launched the National Economy Recovery Plan known as PENJANA in response to the COVID-19 crisis. To raise funds for the stimulus package, Digital Sukuk (Sukuk Prihatin) was introduced. Using a digital mechanism, the sum of US151.7 million (RM660 million) was raised which exceeded (oversubscription by 32 percent by a total of 2.436 subscribers) the initial offer of US115 million (RM500 million) between August and September 2020. The Sukuk was thus upsized to RM600 million.

Objective: The Sukuk is in line with the UN's 2030 Agenda for Social Development Goals (SDGs). The Sukuk funds were used to provide subsidies to the poor (B40 group), support health-related expenditures including giving special allowance to front liners, grant financial assistance to Micro-SMEs to become resilient during the pandemic, and internet coverage to schools in the rural areas to enable them to continue their lessons during Covid-19 lockdown. The funds were used to finance public healthcare expenses in addressing Covid-19 pandemic

Enablers: The Malaysian Ministry of Finance (MoF), Bursa Suq al-Sila' (Stock Exchange), Bank Negara Malaysia, and 27 Deposit Money Banks (participating banks created their websites to promote and facilitate Sukuk Prihatin subscriptions from retail investors).

Challenges: There were competing investment products existing in the market and limited participation among the rural population or senior citizens due to digital barriers.

Redemption: the Sukuk won multiple awards including Overall Deal of the Year 2020, Most Innovative Deal of the Year 2020, Malaysia Deal of the Year 2020, and Best Digital Sukuk by Alpha Southeast Asia in 2020. The Sukuk was fully redeemed on 22nd September 2022 which was announced by the Minister of Finance YB Senator Tengku Datuk Seri Utama Zafrul Aziz.

Box 3.2: GreenSaif Pipelines Bidco Sàr

Issuer: TMS Issuer Sarl, the SPV.

Obligor: GreenSaif Pipelines BidCo S.a.r.l

Purpose: the USD1.5 billion issued project-based Sukuk in February 2023 as part of a total US$4.5 billion issuance to refinance a bridge facility and in dual-tranche financing, the balance of US$3 billion wias sourced from conventional note.

Tenor & Profit rate: Sukuk tenor is 10 years at a profit rate of 5.78% payable semi-annually. The maturity date is 20th February 2033.

Sukuk Structure: Wakalah-Murabahah Sukuk. The Obligor utilizes 25% of it's privately held shares in AssetCo comprising the Wakalah portfolio in a Wakalah–Murabahah structure. The Sukuk is compliant with the enhanced AAOIFI compliance regime applicable in the UAE.

Governing Law: English law saves for the purchase agreement which is governed by Saudi law as this relates to the purchase of an ownership interest in AssetCo.

Underlying asset: 25% of the obligor's shares in Aramco Gas Pipelines and the deferred sale price from the commodity Murabahah

Rating: 'A (positive)' by Fitch Ratings, 'A1 (stable)' by Moody's Investors Service.

Listing: London Stock Exchange

Redemption: Based on AAOIFI standards, the exercise price payable by the Obligor under a purchase or sale undertaking must be based on the fair market value of the shares. That is, the exercise price cannot be structured as the sum of the face amount of the certificates. The maturity is 20th February 2032.

4.0 CHALLENGES AND OPPORTUNITIES

Despite the tremendous performance of Islamic finance and the enormous potential it presents, the industry is still facing some challenges. Some of the challenges include

4.1 Challenges

4.1.1 Standardization of Contracts and Documentation

One of the primary challenges in the Ijarah Sukuk market has been the lack of standardized contracts and documentation, leading to inefficiencies and higher transaction costs. The IIFM addresses this issue by developing standardized Shari'ahh-compliant documentation for Sukuk issuances, including those based on Ijarah contracts. These standardized documents help reduce legal and regulatory uncertainties, lower the costs associated with structuring Sukuk, and speed up the issuance process.

4.1.2 Market Harmonization

The IIFM works towards harmonizing practices across different jurisdictions to create a more unified global Islamic finance market. This effort includes collaborating with regulatory bodies, central banks, and financial institutions to align legal, regulatory, and operational frameworks. By promoting a consistent approach to Ijarah Sukuk across borders, the IIFM facilitates cross-border issuances and investments, expanding the investor base and increasing liquidity in the Islamic finance market.

4.1.3 Innovation and Development of New Products

The IIFM actively contributes to the innovation and development of new Islamic financial products, including those related to Ijarah Sukuk. By identifying market needs and gaps, the IIFM collaborates with industry stakeholders to introduce new structures and solutions that address specific financing challenges. These innovations enhance the flexibility and attractiveness of Ijarah Sukuk, making them suitable for a wider range of projects and financing needs.

4.1.4 Capacity Building and Education

Recognizing the importance of knowledge and expertise in the growth of the Islamic finance industry, the IIFM conducts capacity-building programs and educational initiatives. These programs aim to increase the understanding of Ijarah Sukuk among market participants, including issuers, investors, legal professionals, and regulators. By improving industry expertise, the IIFM helps mitigate the challenges associated with the complexity of Sukuk structuring and enhances market confidence.

4.1.5 Facilitating Liquidity Management

The IIFM develops tools and mechanisms for effective liquidity management, which is crucial for the overall stability and growth of the Islamic finance industry, including the Ijarah Sukuk market. By introducing instruments and solutions for liquidity management, the IIFM ensures that Islamic financial institutions can efficiently manage their liquidity positions, supporting the sustainability and resilience of the Ijarah Sukuk market. Addressing challenges

4. 2 Opportunities of Islamic Finance for Infrastructure Financing

Islamic finance has garnered significant attention as a viable alternative for infrastructure financing, particularly in regions with large Muslim populations and beyond. The principles of Islamic finance, which emphasize risk-sharing, asset-backed financing, and ethical investments, align well with the demands and characteristics of large-scale, long-term infrastructure projects.

4.2.1 Compatibility with Infrastructure Projects

Islamic finance is inherently compatible with infrastructure financing due to its emphasis on asset-backed transactions and risk-sharing. Infrastructure projects, by nature, involve tangible assets and long investment horizons, making them suitable for Islamic financial instruments such as Sukuk, Ijara, Istisna'a, and Musharaka (Khan & Bhatti, 2018). These instruments ensure that all financial transactions are backed by real economic activities, which is a core requirement of Shariah compliance.

4.2.2 Risk Sharing and Asset-Backed Securities

Islamic finance fosters a risk-sharing environment rather than risk transfer, which is common in conventional banking systems. This approach is particularly beneficial for large infrastructure projects that face various risks including financial, operational, and environmental risks. Risk-sharing arrangements can lead to more sustainable and resilient project outcomes (Siddiqui, 2009). The requirement for transactions to be asset-backed provides a stable investment framework, reducing speculation and ensuring that investments are directed towards real economic outputs. This is critical for infrastructure projects, which are capital-intensive and require substantial upfront investment (Iqbal & Mirakhor, 2013; Mirakhor & Krichene, 2009).

4.2.3 Ethical Investment

Islamic finance mandates investments in projects that are beneficial to society and do not harm the environment. This ethical dimension encourages investments in sustainable infrastructure projects, such as renewable energy and green buildings, which not only align with Islamic principles but also with global sustainability goals (Hayat & Malik, 2014).

4.2.4 Impact on Economic Development

Islamic finance has the potential to mobilize significant capital for infrastructure development, especially in developing countries where conventional financing may be limited or costly. The growth of Islamic finance can attract not only Muslim investors but also ethical investors from around the world, expanding the pool of available capital for infrastructure projects. Moreover, the development of infrastructure, such as roads, bridges, and hospitals, directly contributes to economic development by improving productivity, connectivity, and healthcare outcomes (Ahmed et al., 2015).

5.0 CONCLUSION AND RECOMMENDATIONS

The nature of infrastructure financing in Islamic finance reflects a principled approach to investment that prioritizes social welfare, risk sharing, ethical considerations, and financial inclusion. By adhering to Shari'ah principles, Islamic finance offers an alternative model to conventional financing that is particularly suited to the long-term and socially impactful nature of infrastructure projects.

This chapter provides a synthesis of the concepts and evidence on the application of Sukuk in infrastructure project financing. The chapter traced the essence and appraised the principles of Islamic finance as well as the notable Sukuk structures applied in project financing. In addition, global Sukuk trends and case studies on landmark Sukuk were reviewed. The chapter appraised challenges confronting Islamic finance as well as the opportunities that Sukuk portend for infrastructure development. Despite the challenges, the potential for Islamic finance to contribute significantly to global infrastructure development is immense, driven by its ethical underpinnings and innovative financial instruments. While navigating to actualize the full potential of Sukuk for project financing, addressing the challenges would open greater potentials in jurisdictions that are yet to imbibe the Islamic finance instrument. The following are some key recommendations on how to advance infrastructure development via the Islamic finance principles:

i) Enhance Legal and Regulatory Frameworks: Developing countries should establish and strengthen regulatory frameworks that specifically cater to the needs of Islamic finance. This would include tailored laws for Sukuk issuance, project financing, and dispute resolution in Sharia-compliant contracts.
ii) Develop Local Expertise: Governments should invest in education and training programs to build local capacity in Islamic finance. Partnerships with universities and existing Islamic financial institutions can help cultivate a knowledgeable workforce equipped to handle complex financing structures.
iii) Promote Standardization: To overcome the challenge of limited financial instruments and ensure compatibility with international markets, standardization of contracts and practices should be promoted. This could be facilitated through collaboration with international bodies like the Islamic Financial Services Board (IFSB).
iv) Innovative Product Development: Encourage innovation in developing new Sharia-compliant financial instruments that can cater to the unique needs of infrastructure financing. This could involve developing hybrid tools that combine elements of various Islamic finance instruments.
v) Attract International Investments: Implement policies that make the local environment more attractive to international investors, such as tax incentives for Sharia-compliant infrastructure projects and guarantees against non-commercial risks.
vi) Enhance Public Awareness and Perception: A strategic marketing and educational campaign can help enhance the understanding of Islamic finance principles among the public and potential investors, correcting misconceptions and highlighting its benefits.

References

African Development Bank (AfDB). (2021). *African Development Bank Group PPP Strategic Framework* 2021-2031.

Ahmed, H. (2017). *Contribution of Islamic Finance to the 2030 Agenda for Sustainable Development* (with special reference to infrastructure finance).

Ahmed, H., Mohieldin, M., Verbeek, J., & Aboulmagd, F. (2015). On the sustainable development goals and the role of Islamic finance. *World Bank Policy Research Working Paper,* 7266.

Ahmed, S., & Baraka, M. (2021). Innovative Financing for Development: The Role of Islamic Finance. *Journal of Sustainable Finance & Investment*.

Al-Ali, S. (2019). Raising capital on Sukuk markets: Structural, legal and issues (1st ed.). Springer International Publishing. https://doi.org/10.1007/978-3-030-14536-1

Aliyu, S.U.R. (2024). Infrastructure Deficit in Africa: Islamic Finance as a Gap-filler, *Working Paper* submitted to the African Export-Import Bank (Afreximbank) as part of the Sabbatical Research Fellowship Report, April 2024.
Alexander, A. J. (2011). Shifting title and risk: Islamic project finance with Western partners. Michigan Journal of International Law, 571-612.
Ayub, M. (2007). Understanding Islamic Finance. John
Baita, A. J., & Mustafa, D. (2019). Appraisal of Economic Benefits of Sukuk in Financing Budget Deficits in Nigeria. *Journal of King Abdulaziz University: Islamic Economic, 32*(1), 145–158.
Baita, A. J., & Suleiman, H. H. (2021). Sukuk and SDG-9 "Industry, Innovation and Infrastructure" in Sub-Saharan Africa: Achievements, Challenges and Opportunities. In *Islamic Wealth and the SDGs,* 599–620). Springer International Publishing. https://doi.org/10.1007/978-3-030-65313-2_31
Bennett MS, Iqbal Z (2013) How socially responsible investing can help bridge the gap between Islamic and conventional financial markets. *International Journal of Islamic and Middle Eastern Finance and Management* 6(3): 211–225.
Biancone, P. Pietro, & Radwan, M. (2018). Shari'ah-compliant financing for public utility infrastructure. Utilities Policy, 52, 88–94. https://doi.org/10.1016/j.jup.2018.03.006
CIBAFI. (2020). Infrastructure Financing: Investment Opportunities for Islamic Finance.
Chapra, M. U. (2016). The future of economics: An Islamic perspective (Vol. 21). Kube Publishing Ltd.
Climate Bond Initiative (CBI) (2018) Bonds and Climate Change: State of the Market 2018. Available at: https://www.climatebonds.net/resources/reports/green-bonds-state-market-2018.
COMCEC, Infrastructure Financing Through Islamic Finance in the Islamic Countries. Ankara, Turkey, 2019.
Diallo, A. T. & Gundogdu, A. S. (2021). "Islamic Versus Conventional Infrastructure Project Finance vis-à-vis Time-Overrun Issues," pp. 21–35. doi: 10.1007/978-3-030-67094-8_2.
Debt Management Office Nigeria (DMO) (2017). FGN debut Sukuk offer oversubscribed, September 26, 2017. http://www.dmo.gov.ng,
Debt Management Office Nigeria (DMO) (2017). All you need to know about the sovereign Sukuk.
https://www.bing.com/ck/a?!&&p=ca524e18387e97a1JmltdHM9MTcxNDg2NzIwMCZpZ3VpZD0wMTIxZjZiNi04NjdhLTY5MmEtMmYwNi1lNTVkODdlNDY4N2UmaW5zaWQ9NTI0MQ&ptn=3&ver=2&hsh=3&fclid=0121f6b6-867a-692a-2f06-e55d87e4687e&psq=all+you+need+to+know+about+the+first+nigerian+sukuk&u=a1aHR0cHM6Ly93d3cuZG1vLmdvdi5uZy9mZ24tYm9uZHMvc292ZXJlaWduLXN1a3VrLzIxODctYWxsLXlvdS1uZWVkLXRvLWtub3ctYWJvdXQtdGhlLXNvdmVyZWlnbi1zdWt1ay9maWxl&ntb=1
Debt Management Office Nigeria (DMO) (2018). Using Sukuk to finance infrastructure - DMO inspects Roads financed by Sukuk, *Press Release*, 9th April 2018.
Ebrahim, M. S. (2009). Can an Islamic model of housing finance cooperative elevate the economic status of the underprivileged? Journal of Economic Behavior & Organization, 72(3), 864–883. https://doi.org/10.1016/j.jebo.2009.08.002
Gelbard, E., Hussain, M., Maino, R., Mu, Y., & Yehoue, E. B. (2014). Islamic Finance in Sub-Saharan Africa: Status and Prospects, (149; Working Paper Series).

Gundogdu, A. S. (2019). “Determinants of Success in Islamic Public-Private Partnership Projects (PPPs) in the Context of SDGs,” Turkish Journal of Islamic Economics, vol. 6, no. 2, pp. 25–43, Aug. 2019, doi: 10.26414/A055.

Hayat, U., & Malik, A. (2014). Islamic Finance: Ethics, Concepts, Practice (SSRN Scholarly Paper 2616257). https://papers.ssrn.com/abstract=2616257

Heitzig, C., Ordu, A. U. & Senbet, L. (2021). “Sub-Saharan Africa’s debt problem: Mapping the pandemic’s effect and the way forward”.

IDB. (2000). Resolutions and Recommendations of the Council of the Islamic Fiqh Academy: 1985-2000. Islamic Development Bank.

IIFM. (2022). International Islamic Financial Market (IIFM) Sukuk Report 2022.

IIFM. (2023). IIFM Sukuk Report: A Comprehensive Study of the Global Sukuk Market.

Iqbal, Z. (1997). Islamic financial systems. Finance & Development, 34(2), 42–45.

Iqbal, Z., & Mirakhor, A. (2011). An Introduction to Islamic Finance. Wiley. https://doi.org/10.1002/9781118390474

Iqbal, Z., & Mirakhor, A. (2013). Economic Development and Islamic Finance. World Bank Publications.https://books.google.com.qa/books?hl=en&lr=&id=EZpVAAAAQBAJ&oi=fnd&pg=PP2&dq=210.Iqbal,+Z.,+%26+Mirakhor,+A.+(Eds.).+(2013).+Economic+development+and+Islamic+finance&ots=zAkaYTFpts&sig=28wU5MYAnmvpbV8dbdeJkAvwm70&redir_esc=y#v=onepage&q&f=false

Kahf, M. (2013). *Islamic finance contracts*. Al Manhal.

Khan, M. M., & Bhatti, M. I. (2008). Islamic banking and finance: on its way to globalization. Managerial Finance, 34(10), 708–725. https://doi.org/10.1108/03074350810891029

Khan, M., & Bhatti, M. (2018). Challenges and Opportunities for Islamic Finance. Routledge.

Kettell, B. (2012). Islamic Finance in a Nutshell (B. Kettell, Ed.). Wiley. https://doi.org/10.1002/9780470710029

Lewis, M. K. (2010). Accentuating the positive: governance of Islamic investment funds. Journal of Islamic Accounting and Business Research, 1(1), 42–59. https://doi.org/10.1108/17590811011033406

Mckinsey. (2017). Voices on Infrastructure: Insights on project development and finance. Mckinsey.https://www.mckinsey.com/~/media/mckinsey/business%20functions/operations/our%20insights/voices%20on%20infrastructure%20insights%20on%20project%20development%20and%20finance/voi%20insights%20on%20project%20development%20and%20finance.pdf

Mirakhor, A., & Krichene, N. (2009). The Recent Crisis: Lessons for Islamic Finance [MPRA Paper]. https://mpra.ub.uni-muenchen.de/56022/

Mirakhor, A., & Zaidi, I. (2007). Profit-and-loss Sharing Contracts in Islamic Finance. In Handbook of Islamic Banking. Edward Elgar Publishing. https://www.elgaronline.com/edcollchap/9781845420833.00012.xml

Musa, H., & Obadi, S. M. (2009). Islamic Financial Systems.Arad-Seria Ştiinţe Economice,1(1), 124–130.

Lahsasna, A., Hassan, M. K., & Ahmad, R. (2018). *Forward Lease Sukuk in Islamic Capital Markets*. Springer International Publishing. https://doi.org/10.1007/978-3-319-94262-9

Liu, F. H., & Lai, K. P. (2021). Ecologies of green finance: Green Sukuk and development of green Islamic finance in Malaysia. *EPA: Economy and Space, 53*(8), 1896-1914. https://doi.org/10.1177/0308518X211038349

Obaidullah M (2017). Managing climate change: The role of Islamic finance. *IRTI Policy Paper*, (2017-01).

Patel, U. R. & Bhattacharya, S. (2010). “Infrastructure in India: The economics of transition from public to private provision,” *J Comp Econ*. *38*, 52-70.

Refinitiv. (2024, January 31). *LSEG Data & Analytics: Financial Technology & Data*. https://www.lseg.com/en/data-analytics

Responsible Finance Institute (RFI) (2018). *Environmental Impact in Islamic Finance*. Available at: http://report.rfi-foundation.org/download.html.

Ries Ahmed, E., Aminul Islam, Md., & Halim Ku Ariffin, K. (2015). An Empirical Analysis on Legitimacy of Sukuk: An Insight of Malaysian Sukuk. *Asian Social Science, 11*(13). https://doi.org/10.5539/ass.v11n13p84Refinitiv. (2024, January 31). LSEG Data & Analytics | Financial Technology & Data. https://www.lseg.com/en/data-analytics

Rozenberg, J. & Fay, M. (2019). Beyond the gap: How countries can afford the infrastructure they need while protecting the planet. *Sustainable Infrastructure*. Washington: World Bank.

Saeed, A. (1996). *Islamic Banking and Interest: A Study of the Prohibition of Riba and Its Contemporary Interpretation*. BRILL.

Salah, O., & Saeed, A. (2014). Development of Sukuk: Pragmatic and idealist approaches to Sukuk structures. *Journal of International Banking Law and Regulation, 29*(1), 41-52.

Selim, S., Hassan, M. K. & Rahman, M. (2019). “Financing super-infrastructures using Istisna-Sukuk based monetary policy for faster economic development,” *Journal of Economic Cooperation and Development*, *40*(4), 139–162.

Siddiqi, S. A. (2009). A suggested methodology for the political economy of Islam. *Journal of King Abdulaziz University, Islamic Economics*, 22(2), 81–122. https://doi.org/10.4197/islec.22-2.3

Smith, J., & Rahman, A. (2020). Islamic Finance and Economic Development. Springer.

United Kingdom Islamic Finance Council (UKIFC) (2023). *Financing a sustainable future, Green and sustainability Sukuk update 2023*, 1-12.

Usmani, M. T. (2002). *An introduction to Islamic finance*. Kluwer Law International.

Warde, I. (2010). *Islamic Finance in the Global Economy*. Edinburgh University Press.

Wilson, R. (1998). Islamic project finance and private funding schemes. IIUM Journal of Economics and Management, 5, 41-60.

World Bank (2017). Africa’s Pulse.

World Bank. (2020). *Pioneering the green Sukuk: Three years on*.

World Bank, “*Debt Report 2021 Edition*”, Washington DC, 2021.

Zakaria, N. B., Md Isa, M. A., & Abidin, R. A. Z. (2012). The Construct of Sukuk, Rating and Default Risk. *Procedia - Social and Behavioral Sciences*, *65*, 662–667. https://doi.org/10.1016/j.sbspro.2012.11.181

Appendix 1: Differences between Conventional Bond and Sukuk

Conventional Bond	Sukuk
Ownership: A debt bond is characterized by a pure debt for the issuer.	Ownership: A Sukuk is characterized by the ownership of stakes in existing and or well-defined assets.
Issuers: Conventional bonds are issued with underwriters.	Issuers: Sukuk uses Special Purpose Vehicles (SPV) to be the trustee/issuer of the Sukuk
Principal: Bond investors are guaranteed the return on their initial investment/principal.	Principal: Sukuk investors (in theory) share the risk of the underlying asset and may not get all their initial investment (the face value of the sukuk) back. (The value payable to the Sukuk-holder on maturity should be the current market value of the assets or enterprise and not the principal originally invested, according to Usamani, 2002). they are also, in practice, issued with repurchase guarantees.
Pricing: Bond pricing is based on credit rating, i.e., the issuer's creditworthiness.	Pricing: The face value of a Sukuk is priced according to the value of the assets backing it.
Rewards and risks: Returns from bonds correspond to fixed interest. (Because most bonds' interest rates are fixed, most increase in value when the market interest rates fall.)	Rewards and risks: Sukuk can increase in value when the assets increase in value.
Bonds create a relationship between borrower and lender in the form of a contract for which the sole purpose is to earn interest.	The Sukuk contract is a contract founded on the lease or a defined undertaking of business between the Sukuk issuers and the Sukuk holders.
Compliance: Concerning bonds the condition of an underlying asset does not apply and bonds can be issued for purposes that are not legitimate.	Compliance: Concerning the underlying Sukuk asset, a project or business must be of the type such that its use is possible and permissible.
Sale: The sale of a bond fundamentally equates to the sale of debt.	Sale: When you sell sukuk, you are selling ownership in the assets backing them. (In instances where the certificate represents a debt to the holder, the certificate will not be tradable on the secondary market and instead should be held until maturity.)

Source: Adapted from Ahmed, Islam, Ariffin, & Moniruzzaman, (2013).