

The Role of Sukuk in Infrastructure Development: A Systematic Review of Global Experiences and Lessons Learned

Peran Sukuk dalam Pembangunan Infrastruktur: Tinjauan Sistematis Pengalaman Global dan Pelajaran yang Dipetik

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ABSTRACT

This research systematically examines the role of sukuk in infrastructure financing, with a focus on the lessons that can be learned from advanced Islamic financial markets and the implications for developing countries. Sukuk, as a financial instrument that complies with sharia principles, has been widely used in countries such as Malaysia, the United Arab Emirates (UAE), and Saudi Arabia to fund large-scale infrastructure projects. These countries have succeeded in developing strong regulatory frameworks, innovative sukuk structures, and broad investor participation. However, replicating this model in developing countries still faces challenges, such as political instability, low financial literacy, and immature legal infrastructure. Through a systematic literature review, this research identifies key factors that contribute to the success of sukuk in more developed markets and outlines the obstacles faced by developing countries. Additionally, this research provides practical recommendations for policymakers in developing countries, emphasizing the importance of a supportive regulatory environment, capacity development, and public-private partnerships (PPPs). The findings show that with appropriate adaptation, sukuk can be a viable solution for sustainable infrastructure development in developing countries. Future research is recommended to focus on empirical studies evaluating the effectiveness of sukuk in these countries as well as comparative analysis between different financial markets.

Keywords: Sukuk, Infrastructure financing, Islamic finance, Developing countries, Developed markets, Public-private partnerships, Systematic literature review

ABSTRAK

Penelitian ini secara sistematis mengkaji peran sukuk dalam pembiayaan infrastruktur, dengan fokus pada pelajaran yang dapat diambil dari pasar keuangan Islam yang maju serta implikasinya bagi negara-negara berkembang. Sukuk, sebagai instrumen keuangan yang sesuai dengan prinsip syariah, telah banyak digunakan di negara-negara seperti Malaysia, Uni Emirat Arab (UEA), dan Arab Saudi untuk mendanai proyek infrastruktur berskala besar. Negara-negara tersebut berhasil mengembangkan kerangka regulasi yang kuat, struktur sukuk yang inovatif, serta partisipasi investor yang luas. Namun, mereplikasi model ini di negara-negara berkembang masih menghadapi tantangan, seperti ketidakstabilan politik, rendahnya literasi keuangan, dan infrastruktur hukum yang belum matang. Melalui kajian literatur sistematis, penelitian ini mengidentifikasi faktor-faktor kunci yang berkontribusi pada kesuksesan sukuk di pasar yang lebih maju serta menguraikan hambatan yang dihadapi oleh negara berkembang. Selain itu, penelitian ini memberikan rekomendasi praktis bagi pembuat kebijakan di negara-negara berkembang, dengan menekankan pentingnya lingkungan regulasi yang mendukung, pengembangan kapasitas, dan kemitraan publik-swasta (PPP). Temuan

menunjukkan bahwa dengan adaptasi yang tepat, sukuk dapat menjadi solusi yang layak untuk pembangunan infrastruktur yang berkelanjutan di negara-negara berkembang. Penelitian di masa depan disarankan untuk fokus pada studi empiris yang mengevaluasi efektivitas sukuk di negara-negara ini serta analisis komparatif antara pasar keuangan yang berbeda.

Kata kunci: Sukuk, Pembiayaan infrastruktur, Keuangan Islam, Negara berkembang, Pasar maju, Kemitraan publik-swasta, Kajian literatur sistematis

1. Introduction

Infrastructure development plays a crucial role in fostering sustainable economic growth, as it lays the foundation for various sectors, including transportation, energy, and social services. Projects such as roads, bridges, airports, and hospitals not only enhance connectivity and accessibility but also stimulate economic activities and create employment opportunities. However, financing these large-scale infrastructure projects presents significant challenges due to the high costs involved and the need for long-term capital investment (AbdulKareem et al., 2021; Salaudeen, 2021). In response to these challenges, sukuk has recently emerged as a viable financial instrument, particularly in countries with Islamic financial systems. Sukuk, often referred to as "Islamic bonds," are structured to comply with Islamic law, which prohibits interest (riba) and excessive uncertainty (gharar) (AbdulKareem et al., 2021; Alam, 2023). Unlike conventional bonds, sukuk are asset-backed securities that generate returns based on the ownership of underlying assets or income-generating projects. This makes sukuk an attractive option for both Islamic and non-Islamic investors seeking ethical and Sharia-compliant investment opportunities (Putera et al., 2022; Endri et al., 2022). By offering flexible financing solutions, sukuk can support large-scale infrastructure projects while reducing dependence on conventional banking systems (AbdulKareem et al., 2021; Bacha & Mirakhor, 2017).

Countries such as Malaysia and the United Arab Emirates (UAE) have successfully leveraged sukuk to finance major infrastructure initiatives, including toll roads and international airports. These nations have demonstrated that sukuk can effectively mobilize capital for infrastructure development while adhering to Sharia principles (AbdulKareem et al., 2021; Salaudeen, 2021; Endri et al., 2022). One of the key advantages of sukuk is its ability to attract a diverse range of investors, thus opening new avenues for funding that complement traditional financing methods (Alam, 2023; Endri et al., 2022). Additionally, the rise of green sukuk, aimed at financing environmentally sustainable projects, further enhances sukuk's role in supporting global efforts to achieve the Sustainable Development Goals (SDGs) (Supriyadi, 2023; Endri et al., 2022).

Despite its potential, the implementation of sukuk faces challenges, particularly in regions where Islamic finance is still in its developmental stages. Issues such as underdeveloped regulatory frameworks, limited market liquidity, and low investor awareness can impede the growth of sukuk markets (Awwad et al., 2023; Muhammad & Haruna, 2022). However, as sukuk continues to gain recognition as a tool for infrastructure financing, it presents a valuable opportunity for countries to strengthen their economic resilience and sustainability (Salaudeen, 2021; Endri et al., 2022; Muhammad & Haruna, 2022).

In conclusion, infrastructure is a fundamental component of sustainable economic growth, and sukuk offers a promising financing mechanism that aligns with Islamic principles. By utilizing sukuk, countries can bridge the funding gap for infrastructure projects, attract a broader investor base, and ultimately contribute to both economic development and social welfare.

The application of sukuk as a financing instrument for infrastructure projects has achieved significant success in countries such as Malaysia, the United Arab Emirates (UAE), and Saudi Arabia. These countries benefit from having a mature regulatory framework that supports sukuk issuance, ensuring compliance with sharia principles. For example, Bank Negara Malaysia and the Malaysian Securities Commission have created a conducive environment for

sukuk, which is important to attract the attention of investors and issuers (AbdulKareem et al., 2021). In contrast, many developing countries face challenges due to the lack of clear regulations regarding Islamic financial instruments, which causes uncertainty that deters potential investors (Majumdar & Puthiya, 2021; Aman et al., 2021).

In addition, financial markets in countries that have developed Islamic finance are usually well structured and liquid, facilitating efficient issuance and trading of sukuk. Malaysia, for example, has a strong financial infrastructure that allows easy access to a large domestic and international investor base, interested in sharia-compliant instruments (Qizam, 2021; Smaoui et al., 2021). In contrast, many developing countries struggle with fragmented and less liquid financial markets, which makes sukuk issuance difficult (Salhani & Mouselli, 2022).

This disparity shows the importance of a thriving financial ecosystem in promoting sukuk as a viable financing option. Technological innovation also plays an important role in the success of the sukuk market. Developed countries are often at the forefront of integrating technology into sukuk issuance, such as utilizing blockchain for asset tracking and creating green sukuk to fund sustainable projects (Keshminder et al., 2021; Liu & Lai, 2021). However, many developing countries do not have the technological infrastructure necessary to implement these innovations effectively, which hinders their ability to issue sukuk efficiently and transparently (Ulfah, 2023).

Political stability and government support are also additional factors that influence the success of sukuk in infrastructure financing. In Malaysia and the UAE, the government is actively promoting sukuk issuance through supportive policies and direct involvement in infrastructure projects (AbdulKareem et al., 2021; Suriani et al., 2021). In contrast, developing countries often experience political and economic instability, which makes long-term investments riskier for both issuers and investors (Khan, 2023; Sari, 2023). This instability could discourage investment in sukuk, further exacerbating the challenges these countries face.

Finally, the capacity of financial institutions in developed Islamic financial markets to support sukuk issuance is much greater compared to developing countries. Institutions in developed markets have the technical expertise and regulatory knowledge necessary to navigate complex sukuk structures and access investor networks effectively (Bhuiyan et al., 2020; Nasir & Farooq, 2017). However, in many developing countries, there is a lack of financial institutions that have the necessary knowledge and experience in Islamic financing, which limits their ability to utilize sukuk in infrastructure development (Baita et al., 2023).

In conclusion, although countries such as Malaysia, UAE, and Saudi Arabia have successfully integrated sukuk into their infrastructure financing strategies, developing countries face various obstacles that hinder their ability to utilize this financial instrument effectively. By studying experiences from successful sukuk markets, developing countries can identify strategies to overcome these challenges and exploit the potential of sukuk for their infrastructure development.

Although sukuk have proven to be a highly effective instrument in financing infrastructure projects in some developed Islamic financial markets, there are significant gaps in understanding and implementation in developing countries. Countries such as Malaysia and the United Arab Emirates have successfully utilized sukuk to finance large-scale infrastructure projects with adherence to sharia principles. However, many developing countries still face major challenges in trying to replicate this success. This challenge can arise from various aspects, such as the lack of financial infrastructure that supports sukuk issuance, the absence of adequate regulations related to sharia finance, and limited knowledge and experience in managing sukuk-based projects. In addition, limited access to the global investor base and problems with political and economic stability often hinder developing countries' efforts to utilize sukuk as a source of sustainable, long-term financing. In many cases, developing countries may try to implement models that have been successful in developed countries

without considering the differences in economic, social and political conditions that influence the success of sukuk implementation.

This difficulty is also exacerbated by the lack of collaboration and knowledge exchange between countries in terms of managing sukuk for infrastructure financing. Developing countries are often isolated in their efforts to find alternative financial solutions, so they cannot take advantage of the innovation and best practices of countries that have already succeeded. This gap creates challenges for developing countries to create appropriate policies and adapt existing financial models to meet their infrastructure needs, especially in the context of halal and sustainable financing. Therefore, this research aims to dig deeper into the factors that cause this gap and how developing countries can learn from the experiences of more developed countries in using sukuk.

The main objective of this research is to identify important lessons that can be drawn from global experience regarding the use of sukuk in infrastructure financing, especially in countries with more developed Islamic financial markets. By conducting a systematic review of practices that have been proven successful, this research seeks to provide in-depth insights that are relevant for developing countries that are looking for infrastructure financing solutions through sukuk. This research will not only explore the technical and regulatory aspects that support sukuk issuance in developed countries, but will also explore the social, political and economic factors that support the success of these projects. In addition, this research also aims to provide practical recommendations that can help developing countries overcome the challenges faced in implementing sukuk for infrastructure financing. Thus, it is hoped that the results of this research can make a real contribution in supporting the development of the sukuk market in developing countries and facilitating more inclusive and sustainable economic growth.

In this context, research will also assess the relevance and feasibility of models that have been implemented in developed countries when applied to developing countries. By examining macroeconomic conditions, regulatory structures, and financial infrastructure readiness in developing countries, it is hoped that this research will be able to provide more contextual and specific guidance regarding the implementation of sukuk. This aims to ensure that developing countries can not only imitate the success of developed countries, but also adapt them according to their local needs and conditions.

This research focuses on the main questions: *What lessons can developing countries learn from successful sukuk-based infrastructure projects in more advanced Islamic financial markets?* This question is designed to further explore how countries that have successfully used sukuk in infrastructure financing can be a source of inspiration and lessons for developing countries. This covers various aspects, starting from the required regulatory framework, sukuk issuance strategy, global investor involvement, to how governments in developed countries play a key role in supporting sukuk issuance. Through this research question, the research is expected to produce a deeper understanding of the gaps in the implementation of sukuk in developing countries as well as potential solutions that can be adopted to bridge these gaps.

Additionally, this question also invites further research into how lessons from developed countries can be adapted effectively in different contexts, given that each country has unique economic and social characteristics. By focusing on real experiences and models that have been proven successful, this research is expected to offer a valuable perspective for policy makers, financial practitioners and investors interested in developing sukuk for infrastructure in developing countries.

2. Methods

2.1 Research Design

This research uses an approach *Systematic Literature Review* (SLR) to review and synthesize existing evidence regarding the role of sukuk in infrastructure financing, particularly

in the context of developed and developing countries. The SLR approach was chosen because it provides a rigorous and transparent structure for systematically identifying, selecting and analyzing relevant studies. SLR allows researchers to overcome selection bias that may arise in conventional literature reviews, so that the results of the study will be more reliable. By gathering evidence from a variety of different sources and evaluating it critically, this research can provide a more comprehensive understanding of how sukuk have been used to finance infrastructure in various contexts. The use of SLR is also suitable for answering broad research questions, such as understanding the lessons that developing countries can learn from developed countries in the application of sukuk for infrastructure.

This method also allows the research to combine both empirical studies and theoretical reviews related to the topic of sukuk, providing a richer and more in-depth picture of practices that have proven successful. By mapping existing research, SLR provides a solid foundation for critical analysis as well as enabling researchers to identify gaps in the existing literature, which may not have been researched in depth.

2.2 Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were used to ensure that the research only included relevant and high-quality studies that directly support the research objectives.

- *Inclusion criteria* includes articles published between 2010 and 2024, which specifically discuss the use of sukuk in infrastructure financing in developed countries such as Malaysia, the United Arab Emirates and Saudi Arabia. The articles reviewed include empirical research, case studies, and theoretical reviews that discuss the application of sukuk in the context of infrastructure development. Studies that provide analysis of the impact and success of sukuk in financing large projects will also be included. In addition, research that discusses the regulatory framework, risks and potential of sukuk in the context of Islamic financial markets will also be included.
- *Exclusion criteria* include articles that discuss sukuk but are not directly related to infrastructure, such as those focusing on aspects of sukuk in commercial investments, banking, or retail sukuk. Articles that only discuss non-financial aspects, such as cultural or religious issues without a clear connection to the financial sector will also be excluded. In addition, articles that do not provide sufficient empirical data or that contain only theoretical speculation without supporting evidence will also be excluded from the review.

2.3 Data Sources

To obtain relevant literature, this research will use various internationally indexed data sources. The databases to be used include:

- *Scopus*: The largest academic database covering various journals in the fields of economics, finance and Islamic studies.
- *Web of Science*: A platform that allows access to high quality journals and articles related to Islamic finance and infrastructure.
- *ProQuest*: Sources that include dissertations, theses, and academic articles related to sukuk and infrastructure.
- *Google Scholar*: A platform that allows access to various types of publications, including articles, books and conference papers related to this topic.
- *Other indexed journals*: Journals of Islamic finance and Islamic economics which have direct relevance to sukuk financing in infrastructure development.

The focus of this search is on empirical studies evaluating the implementation of sukuk, the impact of financing on infrastructure projects, as well as in-depth theoretical reviews of the use of sukuk in the context of developed and developing countries.

2.4 Search Strategy

The search strategy in this SLR will use specific and relevant keywords to ensure proper research coverage. Keywords used include:

- *Sukuk*: Main keywords that cover all types of sukuk issuance.
- *Infrastructure financing*: To target studies related to infrastructure financing.
- *Islamic finance*: To cover the context of sharia finance in general, including sukuk.
- *Advanced markets*: To focus on countries with more developed Islamic financial markets, such as Malaysia, the United Arab Emirates and Saudi Arabia.
- *Emerging economies*: To focus on developing countries that are seeking to use sukuk in infrastructure financing.
- *Lessons learned*: To identify studies that discuss experiences and lessons from the use of sukuk.

Searches will be conducted using these keyword combinations to ensure that relevant and significant studies in the existing literature can be found and analyzed.

2.5 Data Extraction and Synthesis

The data extraction process was carried out carefully to ensure that only studies that met the inclusion criteria would be analyzed further. In this process, the information to be extracted from each study includes:

- *Research purposes*: To understand the main focus of each study.
- *Methodology*: Including the research approach used, data types, and analysis techniques.
- *Results and Findings*: Focus on the main results related to the application of sukuk in infrastructure financing.
- *Recommendation*: Every recommendation given by the author, both for developed and developing countries.

The extracted data will then be synthesized using the method *narrative synthesis*. This method allows researchers to identify common themes from the various studies reviewed, which are then compiled into comprehensive conclusions. The narrative synthesis will group the findings based on factors such as the success of sukuk issuance, regulatory challenges, investor involvement, and the relevance of lessons that can be applied by developing countries.

3. Results

3.1 Overview of Selected Studies

In this section, a general description of the studies that have been selected and analyzed in the research will be presented. From the results of the search and filtering based on inclusion and exclusion criteria, 30 studies met the requirements and were studied further. These studies cover various geographic regions, with most coming from countries that have developed sharia financial markets, such as Malaysia, the United Arab Emirates (UAE), and Saudi Arabia, as well as several developing countries that are trying to adopt sukuk as an infrastructure financing instrument. . The publication years of these studies range from 2010 to 2024, indicating quite significant developments in the use of sukuk for infrastructure projects over the last decade. The research methodologies used in these studies vary, including empirical quantitative analysis, case studies, literature reviews, and qualitative methods such as interviews with Islamic finance experts. The research focus revolves around regulatory aspects, economic impacts, investor involvement, and the challenges faced in issuing sukuk.

The selected studies highlight the successful implementation of sukuk in developed countries, but also show the difficulties faced by developing countries in replicating the model. In addition, there are studies that discuss how market conditions, regulations and a strong institutional framework contribute to the success of sukuk issuance, especially in the context of infrastructure financing.

3.2 Key Factors Contributing to Sukuk Success in Advanced Markets

The success of sukuk issuance for infrastructure financing in countries with developed Islamic financial markets, such as Malaysia, the United Arab Emirates (UAE), and Saudi Arabia, can be attributed to several key factors, including regulatory support, innovative structures, and strong investor participation. . In Malaysia, known as a pioneer in the global sukuk market, government support plays an important role. The country has established a robust regulatory framework that includes both sharia and secular law, facilitating efficient and transparent sukuk issuance. This regulatory environment increases investor confidence and attracts a diverse range of domestic and international investors who are attracted to the stability as well as the innovative nature of the Islamic financial products available in Malaysia (Godlewski et al., 2016; Yıldırım et al., 2020). The presence of a clear legal infrastructure further supports the sukuk market, ensuring that issuance complies with sharia principles while still meeting conventional financial standards (Maulayati, 2023; Shahimi et al., 2022).

In the UAE, the sukuk market is growing rapidly thanks to the active participation of various investors from both the public and private sectors. The UAE government has implemented incentives for publishers and investors, which is driving market growth (Madani et al., 2020). Additionally, the introduction of innovative sukuk structures, such as wakalah and ijarah sukuk, has provided greater flexibility and adaptability to meet the specific needs of large infrastructure projects (Homsı et al., 2023; Keshminder et al., 2021). This diversification in sukuk structures increases the attractiveness of sukuk as a financing tool and contributes to the development of the overall Islamic finance sector in the UAE (Yıldırım et al., 2020).

Saudi Arabia's rapid economic growth and ambitious infrastructure projects, particularly under the Vision 2030 initiative, are also driving the sukuk market. The government's commitment to infrastructure development, coupled with strong support from leading Islamic financial institutions, has created a conducive environment for sukuk issuance (Yuliani et al., 2022; Umar & Aliyu, 2019). International investors' interest in Saudi Arabia's economic stability increasingly emphasizes the attractiveness of sukuk as a viable financing instrument (Madani et al., 2020). The combination of these factors has made Saudi Arabia an important player in the global sukuk market, along with Malaysia and the UAE.

In conclusion, the success of sukuk issuance for infrastructure financing in Malaysia, UAE, and Saudi Arabia can be attributed to a combination of strong regulatory frameworks, innovative sukuk structures, and active participation from various investors. These elements collectively increase the attractiveness and effectiveness of sukuk as a financing tool in the context of infrastructure development.

3.3 Challenges Faced by Emerging Economies

Developing countries face various challenges in implementing the sukuk model for infrastructure financing, which significantly hinders their successful issuance and implementation. One of the main obstacles is political instability, which creates an environment of uncertainty for potential investors. Political volatility can lead to inconsistent regulatory frameworks and sudden changes in government policies, thereby making the investment landscape less attractive to international stakeholders (Ghezal et al., 2022; Bakar & Baba, 2020). This instability often results in a lack of confidence in financial markets, which is detrimental to the growth of sukuk as a viable financing instrument.

Additionally, low financial literacy among key stakeholders—including policymakers, financial institutions, and the general public—further complicates the situation. Many developing countries do not fully understand the potential of sukuk as a financing tool, both in terms of Islamic financial management and its application in infrastructure projects (Mawardi et al., 2021). This gap in understanding is often exacerbated by the inadequate legal framework supporting sukuk issuance. Weaknesses in contract enforcement, protection of investor rights,

and ambiguity surrounding sharia regulations create additional obstacles to effective implementation of sukuk (Ghezal et al., 2022; Hendra et al., 2023). A comparative analysis of legal and regulatory approaches in different countries highlights these shortcomings, emphasizing the need for a strong legal structure to facilitate sukuk issuance (Ghezal et al., 2022).

Furthermore, limited access to international capital markets remains a significant obstacle for many developing countries. Lack of trust from foreign investors, coupled with high dependence on domestic financing, has hampered the development of the sukuk market in the region (Husain et al., 2022; Nagano, 2016). Empirical findings show that sukuk market accessibility is very important in moderating the relationship between issuance decisions and other determinants, indicating that a more integrated approach to capital markets can increase the viability of sukuk as a financing option (Nagano, 2016). The challenges faced in the sukuk market are not only financial but also structural, requiring a comprehensive strategy to build investor confidence and increase market access (Mawardi et al., 2021; Smaoui et al., 2019).

In conclusion, successful implementation of the sukuk model in developing countries is hampered by political instability, low financial literacy, inadequate legal frameworks, and limited access to international capital markets. Addressing these challenges requires a multifaceted approach that includes improving the regulatory environment, increasing financial education, and building trust among investors.

3.4 Lessons for Emerging Economies

The development of sukuk markets in developing countries can be significantly enhanced by learning from the experiences of countries that already have more established sukuk frameworks. An important first step is the establishment of supportive and stable regulations. A clear and consistent regulatory framework that is aligned with secular and sharia law is critical to building investor confidence and ensuring the success of sukuk issuance. Research shows that the absence of a clear legal framework can hinder sukuk issuance, as identified in various studies highlighting regulatory challenges in the sukuk market (Ghezal et al., 2022; Aman et al., 2021). Countries such as Malaysia have shown that a strong regulatory environment can increase sukuk issuance, thus providing an example for developing countries to emulate (Djafri & Ladin, 2019).

In addition, developing market capacity through education and training on Islamic finance is very important. Increasing financial literacy among policy makers, financial institutions and the general public can empower these stakeholders to effectively utilize sukuk as a financing instrument. Studies show that a lack of awareness and understanding of Islamic finance principles can hinder the growth of the sukuk market (Ernawati & Asri, 2020; Dewi & Ferdian, 2021). For example, initiatives in Malaysia, such as the establishment of institutions dedicated to Islamic financial education, have proven effective in increasing knowledge and skills in this area (Umar et al., 2021). By investing in education programs, developing countries can build a workforce that is knowledgeable and able to handle the complexities of sukuk financing.

Public-private partnerships (PPPs) also play an important role in the success of sukuk-based infrastructure projects. The experience of countries such as Malaysia illustrates how collaboration between government and the private sector can increase project efficiency and innovation (Djafri & Ladin, 2019). By sharing risks and benefits, PPPs can attract private investment into sukuk projects, thereby increasing the amount of capital available for infrastructure development. The integration of private sector expertise can result in better project outcomes and more efficient use of resources, which is critical to the successful implementation of infrastructure projects financed through sukuk.

In conclusion, developing countries can benefit significantly from lessons learned from more developed sukuk markets. By establishing supportive regulations, increasing financial

literacy, and encouraging public-private partnerships, these countries can strengthen their sukuk markets, ultimately driving long-term economic growth through better infrastructure financing.

4. Discussion

4.1 Implications for Policy and Practice

The policy implications for developing countries regarding the use of sukuk in infrastructure financing are very significant, especially if we take lessons from the experience of developed countries. One of the main implications is the need for developing countries to build strong sukuk markets. Countries such as Malaysia, the United Arab Emirates, and Saudi Arabia have successfully utilized sukuk to finance large infrastructure projects, demonstrating the potential benefits of this financial instrument. Policymakers in developing countries should focus on creating an investor-friendly regulatory framework that ensures legal certainty in sukuk issuance and protects investors' rights. This kind of regulation is important because it creates a conducive environment for domestic and international investors to engage in sukuk-based infrastructure projects, thereby improving the overall investment climate (Smaoui et al., 2021; Abdurraheem & Naim, 2018).

Additionally, it is important for governments in developing countries to consider providing incentives to sukuk issuers and financial institutions involved in infrastructure projects. This incentive can be in the form of a tax exemption or subsidy which aims to reduce the costs associated with issuing sukuk. By lowering these costs, sukuk can become a more attractive financing option compared to conventional debt instruments. This approach is in line with findings showing that sukuk financing can encourage infrastructure development, especially during economic downturns when traditional financing may be less accessible (Smaoui et al., 2021; Abdurraheem & Naim, 2018). Additionally, encouraging public-private partnerships (PPPs) can significantly increase private sector involvement in sukuk issuance. PPPs enable risk sharing between governments and private entities, thereby encouraging greater participation in the financing of critical infrastructure projects (Kang et al., 2019; Brady, 2019).

Furthermore, the establishment of a clear and transparent regulatory framework is critical to the success of PPP initiatives in developing countries. Such a framework not only increases trust among stakeholders but also improves operational efficiency, which is important for attracting private investment (Kang et al., 2019; Ma et al., 2022). The experience of countries that have successfully implemented PPPs highlights the importance of transparency and good legal systems in facilitating private sector participation. By learning from these models, developing countries can better position themselves to utilize sukuk as a viable financing mechanism for infrastructure development (Kang et al., 2019; Brady, 2019).

In conclusion, developing sukuk markets in developing countries requires a multifaceted approach that includes creating a supportive regulatory environment, providing incentives for sukuk issuers, and encouraging public-private partnerships. By adopting these strategies, developing countries can effectively harness the potential of sukuk to finance their infrastructure needs, drawing lessons from the successful experiences of developed countries.

4.2 Opportunities for Adaptation

In developing countries, the adaptation of successful sukuk models in developed countries offers significant opportunities to finance infrastructure projects. One promising opportunity is the development of hybrid sukuk, which combine various sukuk structures to meet the specific needs of infrastructure projects. Hybrid sukuk provide greater flexibility in financing and risk management, making them attractive to investors in developing regions where resources may be limited. For example, the combination of Ijarah and Mudharabah structures in hybrid sukuk can facilitate funding for large projects such as power plants, toll

roads, and airports, which can directly address infrastructure deficiencies in these countries (Godlewski et al., 2016; Duku, 2023).

In addition, increasing local investor participation is another important opportunity to strengthen the sukuk market in developing countries. Local investor involvement is often lower than in developed countries, which can hinder the effectiveness of sukuk as a financing tool. By increasing Islamic financial literacy and awareness about the benefits of sukuk, local investors can be encouraged to more actively participate in financing infrastructure projects. Initiatives from governments and Islamic financial institutions to facilitate access for retail investors, for example through digital platforms that allow the purchase of small denominations of sukuk, can significantly increase local participation (Rahim & Mohamad, 2018; Sukmana, 2019). This approach not only democratizes investment opportunities but also strengthens the financial ecosystem in these countries.

Furthermore, developing countries can learn from structural innovations seen in developed countries, such as wakalah sukuk and ijarah sukuk. These structures have been successful in attracting international investors, allowing foreign capital to flow into infrastructure financing. However, it is important for these models to be adapted to local conditions, including variations in Sharia regulations and local investor preferences. The adaptability of sukuk structures to meet local needs can increase effectiveness and acceptance in emerging markets (Hendra et al., 2023; Keshminder et al., 2021). For example, the introduction of green sukuk, which is in line with environmental sustainability goals, can attract a new class of investors focused on ethical and sustainable investments, thereby expanding the investor base and increasing funding for green infrastructure projects (Rahim & Mohamad, 2018; Hendra et al., 2023; Keshminder et al., 2021).

In conclusion, the adaptation of hybrid sukuk models, increased participation of local investors, and incorporation of structural innovations from developed countries offer great opportunities for developing countries to utilize sukuk in infrastructure financing. By addressing local needs and preferences while promoting financial literacy, these countries can create a stronger and more inclusive financial landscape that supports sustainable development.

4.3 Future Research Directions

While this research has provided valuable insights into the use of sukuk in infrastructure financing, there are a number of areas that could be explored further in future research. One of the main recommendations is the need for more in-depth empirical studies in developing countries that have begun to adopt sukuk for their infrastructure projects. Such a study would allow researchers to evaluate the effectiveness of sukuk issuance in a more local and specific context, as well as identify factors that encourage or hinder the success of sukuk issuance.

Comparative research between different sukuk markets is also important to develop. For example, studies comparing sukuk markets in countries such as Malaysia, Saudi Arabia, and Indonesia with more developed markets in developed countries could provide further understanding of what makes sukuk markets successful and how other countries can benefit from these lessons. This comparative evaluation may also include analysis of the impact of regulatory policies, legal infrastructure, and investor participation in sukuk-based infrastructure projects.

Future research should also explore the potential use of sukuk for more environmentally friendly infrastructure projects, in line with increasing global attention to sustainable development. Green sukuk, for example, could be an interesting area of research, given the urgency of infrastructure investment supporting the clean energy transition in many developing countries.

4.4 Limitations of the Review

Although this literature review has provided a comprehensive picture of the use of sukuk in infrastructure financing, there are several limitations that need to be noted. First, limited access to empirical data from developing countries is a major obstacle. Many developing countries still do not have in-depth studies or public reports discussing the issuance of sukuk for infrastructure projects. This causes a lack of empirical data that can be processed to evaluate the effectiveness of sukuk in the context of developing countries.

The second limitation lies in the challenge of measuring the long-term impact of sukuk on infrastructure development. While there is a lot of literature discussing the success of sukuk issuance in the early stages, research examining the impact of sukuk on infrastructure development in the long term is still limited. This is due to the lack of long-term data from sukuk-financed infrastructure projects, especially in developing countries.

In addition, this research is also limited by the variability of sharia regulations in various countries. Each country has different interpretations of sharia law, which can influence the way sukuk are issued and used in infrastructure financing. Therefore, the findings from this study may not be fully applicable to all developing countries, given the differences in cultural, regulatory and economic contexts.

Overall, although this research provides valuable insights, there is significant room for further research to deepen our understanding of the role of sukuk in infrastructure financing in developing countries.

5. Conclusion

5.1 Summary of Findings

In this research, several key findings related to the use of sukuk for infrastructure financing in developed countries have been identified and analyzed. First, the success of sukuk in more advanced Islamic financial markets, such as Malaysia, the United Arab Emirates (UAE), and Saudi Arabia, is driven by a number of important factors, including strong regulatory support, innovation in sukuk structures, and broad participation from both domestic and international investors. Clear and investor-friendly regulations provide legal certainty and protection for stakeholders. In addition, innovations in sukuk design, such as wakalah sukuk and ijarah sukuk, create flexibility in issuance, which attracts more investors. The active participation of the private sector in the public-private partnership (PPP) model has also increased the ability of these countries to use sukuk in financing large infrastructure projects.

However, developing countries face different challenges in adopting similar models. Key obstacles include political instability, lack of financial literacy among local investors, as well as immature legal infrastructure. Nevertheless, there are a number of lessons that developing countries can learn from the experiences of developed countries, especially in terms of strengthening regulatory frameworks and expanding local investor participation.

5.2 Practical Recommendations for Emerging Economies

Based on the findings of this research, there are several practical recommendations that can be implemented by developing countries to increase the use of sukuk as an infrastructure financing instrument:

1. **Development of a Supportive Regulatory Framework:** Developing countries need to ensure that there are regulations that support sukuk issuance and provide legal certainty for investors. Policymakers should work with financial institutions to create a conducive environment for the development of the sukuk market, including providing fiscal incentives for sukuk issuers and buyers.
2. **Increasing Sharia Financial Literacy:** Efforts to increase sharia financial literacy among the community and local investors are very important. Public education campaigns and

training programs can help increase understanding of the potential of sukuk as an investment instrument that complies with sharia principles.

3. **Strengthening Local Investor Participation:** One of the main challenges facing developing countries is the lack of local investor participation. Developing countries can learn from the experience of developed countries by providing easier access for retail investors to participate in sukuk, for example through digital platforms or small denomination sukuk products.
4. **Use of Hybrid Sukuk:** Developing countries can adopt flexible hybrid sukuk models for large-scale infrastructure projects. Hybrid sukuk allow better adaptation to local needs and can attract more investors through risk diversification.
5. **Public-Private Partnership (PPP):** Implementing a public-private partnership model can help developing countries share risks with the private sector in financing infrastructure projects. Developing countries need to create PPP schemes that are attractive and provide benefits for both parties to increase project success.

5.3 Closing Remarks

Sukuk have proven to be an effective financing instrument in several advanced Islamic financial markets, especially in the context of infrastructure project financing. For developing countries, the adaptation and implementation of sukuk not only offers financing solutions that comply with sharia principles, but also provides opportunities to expand investor participation, both domestic and international, in sustainable infrastructure development. By studying the experiences of developed countries and adapting sukuk models to suit local contexts, developing countries can strengthen their financing capacity and promote long-term economic growth. As a flexible and inclusive instrument, sukuk offers a significant alternative to overcome infrastructure financing challenges in developing countries, and with the right approach, this instrument can be the key to sustainable development in the future.

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