

## GREEN SUKUK ISSUANCE: A CASE STUDY OF PUBLIC UNIVERSITY IN MALAYSIA

AMIRUL AFIF MUHAMAT<sup>1</sup>, NURHUDA NIZAR<sup>1\*</sup>, AZHAN RASHID SENAWI<sup>1</sup>, NORZITAH ABDUL KARIM<sup>1</sup>, SALINA KASSIM<sup>2</sup> AND HEAZAR ISMAIL<sup>3</sup>

<sup>1</sup>Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam Campus, 42300 Puncak Alam, Selangor, Malaysia. <sup>2</sup>Institute of Islamic Banking and Finance, International Islamic University Malaysia, Jalan Gombak, 53100 Kuala Lumpur, Selangor, Malaysia. <sup>3</sup>UiTM Energy and Facilities Sdn. Bhd., Level 4, Block 1, INTEKMA Resort and Convention Centre, Persiaran Raja Muda, Seksyen 7, 40000 Shah Alam, Selangor, Malaysia.

\*Corresponding author: [hudanizar@uitm.edu.my](mailto:hudanizar@uitm.edu.my)

<http://doi.org/10.46754/jssm.2024.11.013>

Received: 17 December 2023

Accepted: 8 May 2024

Published: 15 November 2024

**Abstract:** Universiti Teknologi MARA (UiTM) is one of Malaysia's premier public universities, offering a wide range of courses, from pre-diploma to postgraduate studies. In addition to its educational services, the university engages in commercial activities through its investment arm, UiTM Holdings Sdn. Bhd. One of its subsidiaries, UiTM Energy and Facilities has ventured into the solar power sector, which is managed by UiTM Solar Power Sdn. Bhd. (USPSB). To finance its operations, USPSB has issued green sukuk. This paper aims to investigate the factors driving USPSB's entry into the green industry and examines the challenges it faces as a university-owned company with no prior experience in solar projects. The study utilised a single descriptive case study design and included semi-structured interviews with experts in the field. The findings revealed five push factors and two pull factors that influenced USPSB's decision to enter the sector, as well as the primary motivations for issuing sukuk instead of other debt instruments. The study highlighted the issues and challenges USPSB encountered in dealing with green sukuk and provided recommendations to enhance the attractiveness of sustainable and responsible investment sukuk for investors, issuers, and regulators.

Keywords: Green sukuk, solar, public university, Malaysia, Islamic finance.

### Introduction

In recent years, the emergence of green sukuk has provided a new avenue for financing projects aimed at supporting the environment and promoting climate-friendly practices (Keshminder *et al.*, 2021). This growth has attracted the attention of both investors and scholars (Zain & Muhamad Sori, 2020; Rahman *et al.*, 2020; Abdullah & Keshminder, 2021), leading to increased research on various aspects of green sukuk, including its drivers, opportunities, and challenges (Noordin *et al.*, 2018; Keshminder *et al.*, 2021). In their analysis of green sukuk development, Liu and Lai (2021) utilised an ecological framework to examine the complementary and conflicting objectives and motivations within the market construction process. The study emphasised that the goals of green sukuk development in Malaysia have not been completely realised as climate change issues and related problems continue to persist. However, this development is anticipated to lay

the groundwork for future initiatives, including regulations, standards, and instruments. Sukuk, an Islamic bond is issued as a Shariah-compliant alternative fundraising instrument (Maurer, 2010). The Accounting and Auditing Organisation of Islamic Financial Institutions (AAOIFI, 2012) Shari'ah Standard No. 17 on sukuk categorises various types of sukuk based on underlying contracts, including sukuk murabaha (debt), sukuk istisna'a (project), sukuk ijarah (property), sukuk istithmar (investment), sukuk musharaka (partnership), and sukuk salam (pre-payment of an asset for future delivery).

In 2014, the Securities Commission Malaysia (SC) introduced the sustainable and responsible investment (SRI) sukuk framework to promote sustainable development goals, address climate change, and encourage socially responsible financing and investment. As a

result, Malaysia began issuing green SRI sukuk (Piratti & Cattelan, 2020), shown in Table 1, starting with the financing of large-scale solar photovoltaic power plants in Kudat in July 2017 (Piratti & Cattelan, 2020). This was followed by Quantum Solar Park Malaysia Sdn. Bhd., which issued an RM1 billion green SRI sukuk in October 2017 to fund the construction of three 50 MW solar power plants in Kedah, Melaka, and Terengganu. Additionally, in December 2017, PNB Merdeka Ventures Sdn. Bhd. issued an unrated green SRI sukuk of up to RM2 billion to finance an 83-storey office space as part of the Merdeka PNB118 tower project in Kuala Lumpur. In January 2018, Sinar Kamiri Sdn. Bhd. received approval to issue RM245 million to finance a 49 MW solar photovoltaic facility in Perak. Lastly, UiTM Solar Power Sdn. Bhd. (USPSB) issued an RM240 million green SRI sukuk in April 2018 to fund the development and operation of a 50 MW utility solar power plant in Pahang (Figure 1).

The emergence of Islamic green finance is a new and exciting development, exemplified by the issuance of the world's first green sukuk by a Malaysian solar photovoltaic company. Malaysia, as an Islamic country has seen a significant increase in demand for Islamic financial instruments, positioning it as the largest sukuk issuer globally (Klein & Weill,

2016; Noordin *et al.*, 2018). Malaysia maintains its dominance in the sukuk market, boasting a market share of 39.2%, followed by Saudi Arabia (20.4%) and Indonesia (17.5%) have the majority of issuances aligned with the principles of SRIs (Owais & Mustafa, 2018; Cheah, 2021).

Given that USPSB is a notable player in the green sukuk landscape, this study aims to shed light on USPSB's initiatives. UiTM, through its subsidiary UiTM Holdings Sdn. Bhd. (UHSB) operates two large-scale solar photovoltaic plants, making it the only university in the country to manage its own energy consumption. The project stands out as one of the pioneering higher education institutions globally that ventured into green sukuk issuance (Bernama, 2018).

Against this background, this study aims to address pivotal research questions: (1) What motivations drive USPSB's entry into the green industry, particularly in terms of sustainable finance and environmental responsibility? (2) Why did USPSB opt for sukuk over conventional loans or bonds? and (3) What challenges and obstacles does USPSB encounter as an issuer, especially as a university-owned entity with no prior experience in solar projects?

By addressing these research questions, the study provides valuable insights into the

Table 1: Green sukuk issuance in Malaysia as of April 2018

Issuer	Issue Date	Utilisation of Proceeds	Issued Amount (RM Million)
Tadau Energy Sdn. Bhd.	27 July 2017	To finance 50 MW solar power plants in Sabah	250.00
Quantum Solar Park (Semenanjung) Sdn. Bhd.	6 October 2017	To finance three 50 MW solar power plants in Kedah, Melaka, and Terengganu	1,000.00
PNB Merdeka Ventures Sdn. Bhd.	29 December 2017	To fund an 83-storey office space, forming part of the Merdeka PNB 118 tower project in Kuala Lumpur	690.00
Sinar Kamiri Sdn. Bhd.	30 January 2018	To finance 49 MW solar power plant in Perak	245.00
UiTM Solar Power Sdn. Bhd.	27 April 2018	To finance 50 MW solar power plant in Pahang	222.30

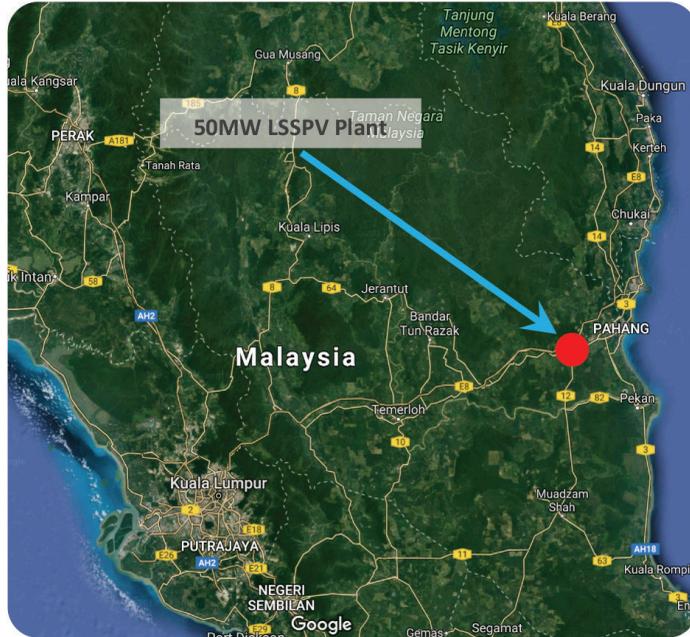


Figure 1: The project site is about 20 km South East of Kuantan (USPSB, 2022)

motivations, benefits, and challenges associated with USPSB's involvement in the green industry and sukuk issuance. Furthermore, understanding USPSB's experiences and perspectives can offer valuable insights for other companies and policymakers seeking to promote sustainable development through Islamic finance mechanisms.

This study contributes to the existing literature in three ways. First, it enhances the understanding of Islamic capital markets, particularly the integration of sukuk and green finance. Second, it examines the factors influencing companies to choose sukuk as a form of debt financing over other options. Lastly, it sheds light on the challenges faced by USPSB, a university-owned company without a track record in solar project performance. The case study approach employed in this study offers unique and direct insights from companies actively engaged in the application of green sukuk.

### ***Background of the UiTM Solar Power Sdn. Bhd.***

The university wholly owns USPSB through UiTM Holding Group, which comprises eight companies across various industries, including the creative industry, information technology, healthcare, energy, facilities management, property management, education, and hospitality. Four of the eight active companies operate in the energy sector. UiTM Energy and Facilities Sdn. Bhd. (UEFSB) is the parent company of USPSB and UiTM Solar Power Dua Sdn. Bhd. As shown in Table 2, this Special Purpose Vehicle (SPV) owns and operates two projects.

The first UEFSB project is a 61 MW large-scale solar plant in Paya Besar, Gambang, Pahang, which commenced operations on 5 April 2019. This project was selected through a competitive bidding process; it is a build-own-operate project with a 21 years concession period. The investment cost approximately RM278 million with an estimated annual

Table 2: UiTM Special Purpose Vehicle (SPV)

	First project	Second Project
Capacity	61 Megawatt (MW)	31 Megawatt (MW)
Location	Paya Besar, Gambang, Pahang	Pasir Gudang, Johor
Total investment	RM278 million	RM125 million
Commercial operation date	5 April 2019	2 December 2020
Clean energy generation	80,000 Mwh	40,000 Mwh
Size of land	290 acres	112 acres
Carbon avoidance	56,000 tons per annum	28,000 tons per annum
Can power up to	22,000 homes	11,000 homes

energy generation of around 80,000 MWh. All electricity generated is directed to the grid with the capacity to power up to 20,000 homes. This year-round project absorbs sunlight and generates electricity for transfer to the Tenaga Nasional Bhd. (TNB) grid network. A 21 years power purchase agreement currently governs the project with TNB. The plant has the capacity to reduce carbon dioxide emissions by 56,000 tonnes per year. Notably, UiTM is the world's first university to use the ASEAN green SRI sukuk issuance to fund a green project.

The second project, currently under construction is located behind UiTM Pasir Gudang in Pasir Gudang, Johor. The land spans approximately 112 acres, which is half the size of the Pahang project. This solar plant, with a capacity of approximately 31 MW is the Energy Commission's second large-scale solar photovoltaic plant (LLSPV), awarded through competitive bidding in 2017. The total investment in this project is approximately RM125 million and it is expected to prevent the emission of 28,000 tonnes of CO<sub>2</sub> per year.

Based on these two projects, USPSB has been recognised as Malaysian Rating Corporation Bhd.'s Sustainability Champion and received the Asset Asian Award for Best Green SRI sukuk (the Asset category). UiTM is Malaysia's first public university to own and operate two LSSPV plants and the first to issue green SRI sukuk to fund the project. The project is part of UiTM's initiative to contribute to Malaysia's national goal of promoting green

technology, accelerating economic growth, and fostering sustainable development.

## Literature Review

### Definition of Sukuk

Sukuk is derived from the Arabic word "*sakk*", which means "certificate". The Accounting and Auditing Organisation for International Financial Institutions (AAOIFI, 2008) defines sukuk as "certificates of equal value representing undivided shares (in ownership of) tangible assets, usufruct, and services or (in ownership of) the assets of specific projects or special investment activities". Sukuk are Islamic debt instruments that have maintained their position as the second-largest contributor to the Islamic financial services industry and a significant growth driver in the industry (Yang, 2022). Green sukuk are formed when sukuk integrate their Islamic financing characteristics with an eco-friendly purpose aimed at supporting environmental and climate-friendly projects (Liu & Lai, 2021). With increasing environmental awareness and demand for clean energy, issues concerning financing clean energy sources have taken centre stage (Keshminder *et al.*, 2019).

Green sukuk and green bonds are both financial instruments designed to finance environmentally sustainable projects, but they differ in several key aspects: First, sukuk must be shariah-compliant, which means that the funds raised can only be used for halal business activities and that the revenue available to sukuk holders is

derived solely from the earnings generated by the sukuk asset itself (Zulkhibri, 2015). Furthermore, to maintain shariah compliance, sukuk must be free of the following major prohibitions: Usury (riba), speculation (gharar), and gambling (maysir) (Akhter, 2015; Qizam *et al.*, 2020).

Second, rather than being a fixed-income security, sukuk are intended to be profit-and-risk-sharing instruments (Yang, 2022). The risks and profits of sukuk are shared between the lender and the borrower, making them generally less risky than traditional bonds. This assertion is supported by empirical studies by Nasir and Farooq (2017) in Pakistan, which compared the risks of sukuk and conventional bonds using a sample of 15 sukuk and 30 term finance certificates issued in the country. The study found that sukuk was a less risky and more stable instrument compared with conventional bonds. Additionally, research by Siska (2022) concluded that sukuk are considered less risky than conventional bonds due to their lower risk levels even in cases of default.

Third, Primambudi (2023) examined the feasibility of utilising corporate green sukuk as a means of funding biofuel development projects in Indonesia. The author suggested that, in terms of maturity, corporate green sukuk requires a longer repayment period compared with traditional bonds.

Additionally, the profits from the underlying assets and the returns are not guaranteed by the issuer. Green sukuk issuance differs from regular sukuk issuance in that it carries a higher standard of governance and disclosure. The issuer must engage a third-party provider to conduct a “greenness” assessment. This process requires the issuer to disclose all relevant information, including the issuer’s overall objectives, strategies, policies, and procedures to qualify the project as green (Kamil *et al.*, 2019). Before a green certification can be granted, challenging tasks such as social impact studies, environmental studies, reporting, and inquiries must be completed. According to issuers, this process is time-consuming, costly,

and disruptive to project planning (Jun *et al.*, 2016).

### Methodology

This study employed the qualitative method proposed by Yin (2018) and Merriam and Grenier (2019), specifically utilising a case study approach due to the novel nature of the subject matter. The qualitative method was deemed appropriate as it facilitated the discovery of underlying issues and a deeper understanding of the issuance of UiTM green sukuk (Levy, 2006). Yin (1984) distinguished three types of case studies: Exploratory, descriptive, and explanatory. A descriptive case study was conducted as it allowed for the presentation of data as it occurred (Symonds & Symonds, 2016). To achieve these objectives, primary qualitative data were gathered through in-depth semi-structured interviews. This technique allows the interviewer to engage in open-ended questioning, encouraging conversation with respondents (i.e., interviewees) rather than strictly adhering to formal questions (Adams, 2015).

The research protocol for this study was established and mapped to the study’s objective to ensure that all necessary steps were taken to avoid errors and uphold ethical behaviour. An ethics application was submitted to UiTM’s ethics committee and approval was granted. As a result, the validity and reliability of the interview questions were improved, assisting in the achievement of the study’s goal, as recommended by Merriam and Tisdell (2016) and Bryman (2016). The saturation point is an important factor in qualitative research because it determines the number of key informants needed to collect sufficient data. The rule indicates that if the “richness” of data or information is adequate to meet the research objective, a single key informant can suffice (Merriam & Tisdell, 2016).

There were three main reasons for focusing on the USPSB as a sample. First, Malaysia, as the world’s largest sukuk market has pioneered

the issuance of green SRI sukuk. Since the introduction of the SRI sukuk framework, USPSB has been among the firms that issued sukuk. Second, a wholly owned subsidiary of UiTM, USPSB is the world’s first institute of higher learning to issue a green SRI sukuk. Third, USPSB was named Malaysian Rating Corporation Bhd’s Sustainability Champion and Asset Asian Award’s Best Green SRI sukuk.

In this study, the researchers initially contacted USPSB’s executive director to obtain permission to conduct online interviews. Subsequently, the purpose of the study was explained to the selected respondents over the phone to ensure they understood the objectives and relevance of the interview process. It was emphasised that the information gathered would be used only for academic purposes. Upon receiving approval from USPSB, a copy of the semi-structured interview questions was emailed to the key informants, allowing them to familiarise themselves with the topics prior to the interview session.

Creswell (2002) suggested that three to five key informants could provide meaningful feedback for research purposes. However, qualitative experts have highlighted that the saturation point may vary depending on the research objectives and context (Guest *et al.*, 2006; Blaikie & Priest, 2019). The number of key informants selected for consultation projects or research grants with specific time frames may differ from PhD research endeavours, where a larger sample size—typically around 15 key informants—may be necessary to ensure the robustness of the study over an extended duration. Table 3 provides a list of the key informants included in this study.

During the interview sessions with USPSB’s management, students with finance backgrounds were present as listeners to provide industry insights. Their involvement facilitated the integration of theoretical frameworks into practical discussions, enabling a deeper understanding of the subject matter. The interview process spanned over two and a half hours to ensure thorough discussions and a comprehensive understanding of the topics covered.

Thematic analysis was used to interpret the interview results. Blandford (2013) identified six stages for thematic analysis: Familiarisation with the data, generation of initial codes, theme search, theme review, theme definition and naming, and report production. The analysis started with reading the interview transcripts to determine themes related to motivational factors and obstacles, as guided by the semi-structured interviews. The data for this study were verified after reading the written documents and the transcripts were meticulously prepared.

**Results and Discussion**

The first research question examines the pull and push factors influencing USPSB’s decision to enter the green business. The analysis identified five main contributing factors: Budget cuts, increased annual operating expenses, the need to upgrade ageing buildings, increased research and development (R&D) activities, and idle assets (Figure 2).

According to the interviewees, the primary push factor behind USPSB’s entry into the solar business is the significant reduction in government funding. The Malaysian government has encouraged public universities

Table 3: List of key informants

No.	Key Informants’ Name	Management Level
1.	Interviewee 1	Chief Executive Officer
2.	Interviewee 2	Project Director
3.	Interviewee 3	Executive 1
4.	Interviewee 4	Executive 2



Figure 2: Pull and push factors that drove USPSB into the energy industry

to rely less on government support and to utilise their assets for internal revenue generation. UiTM, as the largest university system in Malaysia by size and population has experienced budget cuts, being the most significant recipient of government funding. Additionally, there has been a notable rise in annual operating expenses. The costs associated with running a university are increasing and many buildings on traditional UiTM campuses are deteriorating, necessitating renovations. As universities place greater emphasis on R&D activities, there is a corresponding need for increased funding. R&D initiatives often involve extensive laboratory work, the purchase of specialised equipment, hiring skilled researchers, and financing collaborative projects with industry partners. These activities require substantial financial investment to ensure the success and competitiveness of the university's research programmes. In response to these challenges, UiTM has begun implementing two key strategies to improve operational efficiency: Lowering operating costs and generating revenue from the university's assets. The decision to commercially own multiple LSSPV plants is part of the university's effort to achieve

carbon neutrality while generating long-term revenue.

Pull factors driving USPSB's entry into the green business include significant initiatives by the Malaysian government to promote renewable energy. These initiatives encompass large-scale solar programmes launched in 2016 alongside the National Agenda for Renewable Energy and Energy Efficiency. Under this agenda, the government aims to achieve a 20% renewable energy mix by 2025. As part of this initiative, the Energy Commission, the project's agency conducted several competitive exercises, including LSS1 in 2016, LSS2 in 2017, LSS3 in 2019, and LSS4 in 2020. These programmes aim to reduce the levelised cost of energy for constructing LSSPV systems, thereby incentivising investments in renewable energy infrastructure. In response to these government-led initiatives, USPSB actively participated in the competitive bidding exercises, ultimately securing contracts to develop 50 MW solar plants under the LSS programme.

The second research question examines the reasons behind USPSB's preference for sukuk over conventional loans or bonds.

USPSB opted for sukuk instead of conventional loans for five reasons (Figure 3). First, the availability of low-cost, long-term financing has made sukuk pricing more attractive compared with conventional financing instruments such as term loans. Traditional loans are often provided by a single bank, which may assess higher risk compared to multiple investors participating in sukuk. With numerous investors interested in purchasing sukuk, competitive bidding typically leads to lower costs for the issuer.

Long-term financing is another advantage of sukuk, alongside lower-cost funding. Sukuk structures can offer longer tenures compared with conventional bonds, which is beneficial for companies engaged in long-term investment projects or capital-intensive ventures.

Sukuk can have a tenure of up to 20 years, whereas conventional loans in Malaysia typically have a maximum loan period of about 15 years. This longer financing period aligns well with the capital needs of such companies. With a longer tenure, the company’s year-to-year commitment for principal and interest payments is reduced as payments are spread out over a more extended period. Consequently,

the company’s cash flow is higher on an annual basis. This increased cash flow allows the company to declare dividends earlier and potentially distribute more dividends year after year. Primambudi (2023) noted that in terms of maturity, corporate green sukuk requires a longer repayment period than conventional bonds, a perception that aligns with the findings of this study.

Second, regarding reputation and image, the profile of the sukuk issuer is published by relevant agencies, including rating agencies, the Securities Commission and Bank Negara Malaysia. This profiling strengthens the brand’s reputation, positioning it as a credible entity capable of issuing A-rated sukuk. An enhanced reputation facilitates future financing arrangements for subsequent projects, thereby bolstering the project’s credibility. Moreover, the annual return associated with sukuk will serve as a benchmark for future sukuk issuances or even normal conventional financing.

Third, issuing green sukuk attracts a broader investor base, thereby increasing the supply of funds. This expansion is not limited to local investors; it also includes external investors. With a larger pool of investors, the capital



Figure 3: Reasons for USPSB

supply becomes more competitive, as there is a greater emphasis on providing capital rather than merely demanding it. When the supply of funds exceeds demand, the cost of capital for the issuer decreases due to this expanded investor base. Additionally, the existence of green certification significantly enhances the appeal of green sukuk, particularly to overseas investors, especially in Europe. Many European funds and managers have already prohibited investments in non-green assets, further encouraging investment in green sukuk.

The fourth-factor influencing USPSB’s preference for sukuk is fixed financing costs. Traditional financing often employs a floating interest rate mechanism, where the cost of funds includes the bank’s expenses and profit, leading to fluctuations over time. In contrast, sukuk typically features a fixed cost of funds and profit rate for its entire duration, which can extend up to 17 years, compared to the typical 15 years for conventional financing. This stability in the cost of funds mitigates the financial uncertainties associated with project financing.

Finally, the issue of stamp duty and tax breaks is significant. Sukuk is exempt from

stamp duty, unlike standard financing options, which can incur high stamp duty costs based on the funding amount. Additionally, profits generated from sukuk are tax-free. Tax benefits are available as deductions for expenses related to advisory and consultancy services during sukuk issuance, allowing these costs to be offset against annual income. Consequently, the uncertainties tied to sukuk issuance are reduced.

**Challenges Faced by USPSB**

The third research question explores the key issues and challenges faced by USPSB as an issuer, specifically as a university-owned company lacking a track record in solar projects.

USPSB faces three major challenges (Figure 4). The first challenge pertains to project delivery. USPSB is experiencing difficulties in placing solar panels due to uncertainty regarding the exact location of the East Coast Rail Link (ECRL). The company did not receive detailed information from the ECRL regarding the precise entry and exit coordinates within the ECRL corridor. Consequently, it was challenging for USPSB to determine the exact placement of the solar panels, compounded by delays in ECRL’s



Figure 4: Challenges of having sukuk

confirmation of these details. Initially, USPSB was informed of a land area approximately 40 metres in diameter and several hundred metres in length, but this was insufficient for accurate planning. Both parties had to ensure that the solar photovoltaic farm and the ECRL railway design could coexist without interfering with one another, which took nearly four months to resolve. As a result of these delays, USPSB is obligated to bear all costs associated with the project's delivery delay, including liquidated damages imposed by TNB, which incurred losses due to the postponement of ECRL's decision.

The second challenge is related to financing. As a university-owned company, USPSB encountered difficulties in securing financing for its inaugural project. At the time, the company lacked a strong profile, given that this was its first solar initiative. However, the issue was addressed through the issuance of green SRI sukuk in 2018, which facilitated the successful execution of the project to some extent. The experiences and backgrounds of the board management, along with the potential profitability of the solar industry supported by the parent company's assets played a significant role in boosting investor confidence. Furthermore, the country's commitment to cleaner energy and climate change initiatives positively influenced the subscription for the sukuk.

Nevertheless, the situation has not always been favourable. The sukuk, initially rated AA-IS (stable outlook) by MARC, the rating agency, faced a downgrade to a negative outlook in early 2022. This change was attributed to the closure of the plant caused by unexpected damage to its gas-insulated switchgear and power transformer (Islamic Finance News, 2022). The good news is that after a closure lasting seven months since November 2021, the solar plant resumed operations in June 2022. Unfortunately, the rating agency maintained its negative outlook despite the plant's reopening, citing uncertainty regarding the insurance compensation and the amount USPSB would receive if the claim were substantiated and approved (MARC, 2022).

The third challenge is related to weather conditions. The performance of the solar photovoltaic (PV) system depends significantly on the amount of sunlight received. However, fluctuations in weather make it difficult to predict solar radiation levels accurately. Additionally, Gampang, located on the east coast, is affected by monsoons that bring heavy rainfall, strong currents, and unpredictable storms from the South China Sea. These weather patterns complicate the determination of energy storage requirements for future use. While the earlier discussion outlined the potential of green SRI sukuk, this niche market is still small and in its infancy. Issuers must actively engage with the market to attract investors. This sentiment is echoed by Saturn Capital (2019, p.8) in its White Paper, as presented below:

*"...green bonds' tighter spreads could reflect a simple preference on the part of investors, which could be the case if investors accrue enough other benefits to offset the lower cash flow."*

## Conclusions

The study examined the factors motivating USPSB, a university-owned company with no prior solar projects experience to enter the green industry and the challenges it has faced. Through key informant interviews, five push factors were identified: Budget cuts, increased annual operating expenses, ageing buildings needing upgrades, increased R&D activities, and idle assets.

The pull factors included large-scale solar programmes and a national renewable energy agenda focused on efficiency. Additionally, the findings highlighted five benefits of issuing green sukuk and three key challenges encountered by USPSB.

## Recommendations

The findings from this study may guide policymakers in formulating future guidelines for SRI sukuk to enhance its appeal to domestic

and international investors, issuers, and regulators. These guidelines should focus on streamlining the green sukuk issuance process, clarifying regulatory requirements, and offering incentives for sustainable financing initiatives.

USPSB's experience in the green sukuk market can serve as a valuable model for other universities or companies interested in this niche. Efforts should be made to facilitate knowledge sharing and collaboration among institutions pursuing similar initiatives, potentially through workshops, seminars, or industry conferences, where USPSB can share its experiences, challenges, and best practices.

Continuous evaluation and monitoring of the green sukuk market are crucial for long-term sustainability and growth. Islamic capital market practitioners, including regulatory bodies and industry associations should conduct periodic reviews to assess the effectiveness of green sukuk issuance in promoting environmental sustainability and meeting the financing needs of green projects. This evaluation should incorporate feedback from investors, issuers, and other relevant stakeholders to identify areas for improvement and innovation.

To mitigate weather-related challenges, it is recommended to implement a professionally designed system that allows for the adjustment of solar panel angles to optimise sunlight exposure, even during rainy conditions. This adaptation will enable solar panels to function effectively, even when light is reflected or partially obscured by clouds.

By adopting these recommendations, stakeholders in the green sukuk market can contribute to the advancement of sustainable finance initiatives and strengthen Malaysia's position as a global leader in Islamic finance.

### Acknowledgements

This work was supported by the Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam Campus [Grant Numbers 600-TNCPI 5/3/DDF (FPP) (013/2021)].

### Conflict of Interest Statement

The authors declare that they have no conflict of interest.

### References

- Abdullah, M. S., & Keshminder, J. S. (2020). What drives green sukuk? A leader's perspective. *Journal of Sustainable Finance and Investment*, 12(3), 1-21.
- Accounting and Auditing Organization for Islamic Financial Institutions (AAIOIFI) (2012). *Shari'ah standard no. (17) investment sukuk*. AAIOIFI. <https://aaioifi.com/ss-17-investment-sukuk/?lang=en>
- Adams, W. C. (2015). Conducting semi-structured interviews. In Newcomer, K. E., Hatry, H. P., & Wholey J. S. (Eds.), *Handbook of practical program evaluation* (4<sup>th</sup> ed., pp. 492-505). John Wiley & Sons.
- Akhter, M. U. (2015). *Principles of Islamic finance: Prohibition of riba, gharar and maysir*. Munich Personal RePEc Archive. (Paper No. 67711).
- Alan, B. (2016). *Social research methods*. Oxford University Press.
- Blaikie, N., & Priest, J. (2019). *Designing social research: The logic of anticipation*. John Wiley & Sons.
- Blandford, A. (2013). Semi-structured qualitative studies. In Soegaard, M., & Dam, R. (Eds.), *The encyclopedia of human-computer interaction*. Interaction Design Foundation.
- Bernamea. (2018). UiTM becomes world's first university to issue green SRI sukuk. *Bernamea*. [http://education.bernama.com/index.php?id=1455709&sid=news\\_content](http://education.bernama.com/index.php?id=1455709&sid=news_content)
- Brendenkamp, H., & Pattillo, C., (2010). Financing the response to climate change. *IMF Staff Position Note, SPN 10/06, International Monetary Fund, USA*.
- Bryman, A. (2016). *Social research Method*. Oxford University Press.

- Cheah Chor Sooi (2021, April 1), *Malaysia remains a formidable force in global sukuk market in 2020* available at <https://focusmalaysia.my/malaysia-remains-a-formidable-force-in-global-sukuk-market-in-2020/>. Retrieved October 10, 2022.
- Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative* (Vol. 7). Prentice Hall Upper Saddle River.
- Drum, P. (2019). Green sukuk: A new legacy for green sprouts. *Saturna Capital*. <https://www.saturna.com/insights/white-papers/green-sukuk-new-legacy-green-sprouts>
- Falsen, C., & Johansson, P. (2015). *Mobilizing the debt market for climate change mitigation: Experiences from the early green bonds market*. Chalmers University of Technology.
- Godlewski, C. J., Turk-Ariss, R., & Weill, L. (2013). Sukuk vs. conventional bonds: A stock market perspective. *Journal of Comparative Economics*, 41(3), 745-761.
- Islamic Finance News. (2022). MARC extends UiTM's negative watch. *Islamic Finance News*. <https://www.islamicfinancenews.com/marc-extends-uitms-negative-watch.html>.
- Keshminder, J. S., Abdullah, M. S., & Mardi, M. (2021). Green sukuk – Malaysia surviving the bumpy road: Performance, challenges and reconciled issuance framework. *Qualitative Research in Financial Markets*, 14(1), 76-94.
- Keshminder, J., Kaur Bariam Singh, G., Wahid, Z. A., & Syafiq Abdullah, M. (2019). Green sukuk: Malaysia taking the lead. *Malaysian Journal of Consumer and Family Economics*, 22(Special Edition 2), Article 122.
- Klein, P. O., & Weill, L. (2016). Why do companies issue sukuk? *Review of Financial Economics*, 31, 26-33.
- Leh, R. L., Mohd Roslen, S. N., Ibrahim, S. A., Yee, L. S., & Theam, T. S. (2017, August 14-15). Feasibility of green bonds issuance in Malaysia towards financing a sustainable future: A conceptual review of literatures. *Global Conference on Business and Economics Research (GCBER)*. [https://econ.upm.edu.my/upload/dokumen/20170816174344016-RAYMOND\\_LING\\_LEH\\_BIN.pdf](https://econ.upm.edu.my/upload/dokumen/20170816174344016-RAYMOND_LING_LEH_BIN.pdf)
- Levy, D. (2006). Qualitative methodology and grounded theory in property research. *Pacific Rim Property Research Journal*, 12(4), 369-388.
- Liu, F. H. M., & Lai, K. P. Y. (2021). Ecologies of green finance: Green sukuk and development of green Islamic finance in Malaysia. *Environment and Planning A*, 53(8), 1896-1914.
- Maurer, B. (2010). Form versus substance: AAOIFI projects and Islamic fundamentals in the case of sukuk. *Journal of Islamic Accounting and Business Research*, 1(1), 32-41.
- MARC. (2022, July 27). *MARC ratings extends UiTM solar's MARC watch negative placement*. <https://www.marc.com.my/index.php/marc-ratings-announcements/1794-marc-ratings-extends-uitm-solar-s-marcwatch-negative-placement-20221011>
- Merriam & Grenier (2019). *A practical introduction to qualitative research across fields and disciplines* (pp. 480). John Wiley & Sons.
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation* (4<sup>th</sup> ed.). John Wiley & Sons.
- Nasir, A., & Farooq, U. (2017). Analysis of value at risk of sukuk and conventional bonds in Pakistan. *Journal of Islamic Accounting and Business Research*, 8(4), 375-388.
- Noordin, N. H., Haron, S. N., Hasan, A., & Hassan, R. (2018). Complying with the requirements for issuance of SRI sukuk: The case of Khazanah's sukuk Ihsan. *Journal of*

- Islamic Accounting and Business Research*, 9(3), 415-433.
- Owais, M., & Mustafa, M. F. (2018). Implication of Malaysia SRI sukuk framework in sustainable community and economic development. *Journal of Economics and Finance*, 9(6), 53-66.
- Piratti, M., & Cattelan, V. (2020). Islamic green finance. In Cattelan, V. (Ed.), *Islamic social finance* (pp. 144-172).
- Primambudi, G. (2023). Financing biofuel through green sukuk corporate: Stage, potential, and maturity. *Journal of Economics and Policy*, 16(1), 104-115. <https://doi.org/10.15294/jejak.v16i1.43270>
- Qizam, I., Ardiansyah, M., & Qoyum, A. (2020). Integration of Islamic capital market in ASEAN-5 countries: Preliminary evidence for broader benefits from the post-global financial crisis. *Journal of Islamic Accounting and Business Research*, 11(3), 811-825.
- Rahman, M., Isa, C. R., Dewandaru, G., Hanifa, M. H., Chowdhury, N. T., & Sarker, M. (2020). Socially responsible investment sukuk (Islamic bond) development in Malaysia. *Qualitative Research in Financial Markets*, 12(4), 599-619.
- Siska, W. (2022). Analysis of the risk and return of bonds and sukuk listed on the Indonesia stock exchange. *Modern Economics*, 33(1), 99-109.
- Symonds, P., & Symonds, P. M. (2016). The case study as a research method. In Tight, M. (Ed.), *Case studies* (pp. 15-15). Sage Publications Ltd. <https://doi.org/10.4135/9781473915480>
- Yang, T. (2022). The issuance of *sukuks* in China: Prospects and challenges. *Journal of Islamic Accounting and Business Research*, 13(7), 1059-1072.
- Yin, R. K. (2018). *Case study research and applications*. Sage.
- Zain, N. S., & Muhamad Sori, Z. (2020). An exploratory study on musharakah SRI sukuk for the development of waqf properties/assets in Malaysia. *Qualitative Research in Financial Markets*, 12(3), 301-314.
- Zulhibri, M. (2015). A synthesis of theoretical and empirical research on sukuk. *Borsa Istanbul Review*, 15(4), 237-248.