

**MEASURING RISK AND RETURN OF SUSTAINABLE AND RESPONSIBLE
INVESTMENT (SRI) SUKUK IN MALAYSIA**

By

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Abstract

The *Sustainable and Responsible Investment (SRI) sukuk* is a financing instrument that could utilize Islamic finance to tap into the growing social impact investment markets around the world. Given the novelty of the *SRI sukuk*, it is still relatively unexplored. To further contribute to the development of *SRI sukuk*, this paper aims to provide a critical review on how the *Sukuk Ihsan* compare to Malaysia sovereign bonds, Malaysia Islamic sovereign bonds, Malaysia corporate issued AAA-rated bonds and other educational social impact bonds around the world. I find that the *SRI sukuk* is significantly different from similar AAA-rated corporate bonds, Islamic sovereign bond and Malaysia sovereign bond. The *SRI sukuk* is riskier than Islamic sovereign bond and Malaysia sovereign bond but less risky than similar AAA-rated corporate bonds. There is also significant difference between *SRI sukuk* and other educational social impact bonds. The yield spread of *SRI sukuk* and sovereign bonds tend to be on the lower side when compared with other educational social impact bonds and is attributed to its credit rating and bond structure.

1. Introduction

Social impact bonds (SIBs) have two core characteristics – 1) based on an outcomes contract and 2) involve a social enterprise or non-profit and an impact investor. The social enterprise or non-profit agrees to deliver social service on a “pay for success” basis, where a funder only pays if the service achieves some pre-specified outcomes. The impact investors provide the working capital and management required to deliver the program successfully.

As of 2018, there are 134 social impact bonds, where the outcome funder is the government and there are 7 development impact bonds (DIBs), with third-party funders paying for outcomes. The use of social impact bonds cover issues such as social welfare, employment, health and

education. Malaysia has pioneered the use of *sukuk* in socially responsible investing and has issued guidelines for the *SRI sukuk*. The framework is part of the Securities Commission Capital Market Masterplan 2 to promote socially responsible financing and investment (Securities Commission Malaysia, 2011).

The *sukuk* is debt (rarely equity) or funding arrangement contracts, mostly without managerial control of the project funded but with unique fractional ownership of a set of income-producing assets of a borrower (Mohamed et. al, 2014). These assets are set aside by the borrower as asset-backed or asset-based contracts held in a special purpose company (SPC) owned by the fund providers, whose payoff is based on profit sharing from the assets of the SPC.

But unlike a bond holder, a *sukuk* holder is granted an ownership interest in the assets or business being financed, and the return is tied to the performance of the underlying assets. Hence, the sale of *sukuks* are equal to the sale of ownership of assets. *Sukuk*, unlike bonds, are priced according to the real market value of the assets backing the *sukuk* certificate. The unique structure of *sukuk* with its risk-sharing and societal impact focus make it a tool for socially responsible investing (Bin Syed Azman et al. 2016).

The first *SRI sukuk* in Malaysia was launched by Khazanah Malaysia Berhad (Khazanah) in May 2014 (Khazanah Nasional, 2015). The *sukuk* program conducted by a Special Purpose Vehicle (SPV) named Ihsan *Sukuk* Bhd (Ihsan), has a RM1.0 billion (USD 239 million) nominal value with maturity of 25 years from its first issuance. The first issuance was fully subscribed in June 2015 at RM100 million and has a 4.3% return per annum over 7 years (The Star Online, 2015). The rating assigned was AAA by RAM Rating Service Bhd (RAM). The proceeds from the issuance is channeled to Yayasan AMIR, a non-profit that manages Khazanah's Trust Schools program – a public- private partnership with the government. The objective of the program is to

improve accessibility to quality education in Malaysia. It follows a “pay-for-success” structure which measures impact through Key Performance Indicators (KPIs) throughout a 5-year period. Independent auditors from either Ernst & Young, KPMG, PricewaterhouseCoopers or Deloitte shall evaluate the KPIs and provide a report for the *sukuk* trustees, facility agent and *sukuk* holders (CIMB, 2015).

As Islamic finance and SRI share similarities, there is potential in developing financial instruments that can attract investors to invest in Islamic financial assets. According to Bennett and Iqbal (2013), SRI fixed incomes could serve as an effective tool to bridge the gap between Islamic and conventional financial markets. The development of *SRI sukuk* could also increase the market capitalization of Islamic financial assets. This is also in line with the Capital Market Masterplan 2 (CMP2) to promote Malaysia as the global center for socially responsible financing and investment, in accordance with the *SRI sukuk* Framework was issued by the Malaysian Securities Commission (SC) in August 2014. Given the growing interests in the environmental, social and governance (ESG) aspects of business and rising trend of SIBs, the framework supports the establishment of a conducive environment for both SRI investors and issuers with a wider range of investment product offered to encourage greater participation in the *sukuk* market.

Currently, there is no industry-wide accepted standard to appraise risks, uncertainties and returns for SIBs. Identifying risk, uncertainty and returns are important for the scalability and replicability of SIBs. There is a need for independent evaluation of their outcomes and impacts that promote both accountability and learning, theories of change and engage beneficiary stakeholders (Jackson, 2013). This illustrates the importance of gaining insights to better design and promote the practical applications of impact investing tools, including SIBs. How the effects

of SIBs play out the level of individuals and households is not a question that has yet been taken up by SIB proponents or sponsors.

In terms of *sukuk*, the discussion of *sukuk* is centered around *sukuk* as a possible tool to address social issues and compliance on issuance. There are currently no papers on the measurement of risk and returns for social impact *sukuk*. My work contributes to the debate on *sukuks* in terms of valuation of risk and return specifically on social impact *sukuks* in Malaysia by proposing suggestions and insights and serving as a guide for scholars and practitioners. While risk is already perceived as an important factor for evaluating social innovation in general (Krlev, Glänzel, and Mildemberger 2013), a deeper understanding of risk and how it is financially priced in terms of investing has yet to be developed (Brown and Swersky 2012). I will explore to what extent do the risk of sustainable and responsible investment *sukuk* differs from social impact bonds and the risk of *sukuk* differ from sovereign bonds and corporate bonds.

2. Literature Review

There are only 26 SIBs in the world and because of the heterogeneity of social projects funded by these assets, there is no generalized framework for pricing SIBs. Referring to the availability of performance data, out of 20 SIBs that closed, only 12 offered information about financial and social performance (Social Finance, 2016). The academic and grey literatures on social impact bonds are limited in number but emergent (Disley et al., 2011; Disley and Rubin, 2014; Gustafsson-Wright and Gardiner, 2015; Arena et al., 2016; Social Finance, 2016, OECD, 2016; Berndt and Wirth, 2018; Albertson et al., 2018). Observers are largely interested in technical issues and are focusing on how to improve the market for more socially inclined investors.

Academic and more policy-oriented contributions paint a positive picture about SIBs. SIBs are presented as a powerful tool that can overcome “inefficient” state intervention, bureaucracy and “unreliable” social service provision. Social impact bonds play a key role by mobilizing private resources for public sector programs (Rizzello et al., 2016; Trotta et al, 2015). The SIB’s structure involves several counterparties, including financial intermediaries, commissioners, social service providers and investors. From a theoretical perspective, Clifford and Jung grouped the various concerns about SIBs into three main categories: measurement, financialization and governance. In detail, Fraser et al. (2018) identifies three narratives: “a public sector reform narrative, a financial sector reform narrative, and a cautionary narrative”, and analyzed in relative to three themes: “public versus private values, outcomes contracting and risk allocation”.

SRI sukuk varies from normal *sukuk* like how social impact bonds vary from traditional bonds (Mohamed et. al, 2014). The similarities between Islamic Finance and Socially Responsible Investments (SRI) drew more SRI investors to invest in Islamic financial assets. According to Bennett and Iqbal (2013), SRI fixed income could be a tool to bridge the gap between Islamic and conventional financial markets.

The published literature on *SRI sukuk* remains almost non-existent with notable exception of the works of Bennett and Iqbal (2013), Moghul and Safar-Aly (2015), Syed Azman and Engku Ali (2016), Sairally (2015) and Noordin et. al (2016). Bennett and Iqbal (2013) found that there are significant similarities between Islamic finance and SRI markets. The study suggested the issuance of *sukuk* to combine both markets together that serves the demand of both Shariah compliance and SRI investors. Moghul and Safar-Aly (2015) introduced the integration of the ESG market and the Islamic capital market via a green *sukuk*. Syed Azman and Engku Ali (2016) highlighted how SIBs and *SRI sukuk* agree with Islamic principles, which could attract more non-

Muslim investors to invest in Shariah-compliance assets. Sairally (2015) argued that *Maqasid al-Shariah* - "the attainment of good, welfare, advantage, benefits and warding off evil, injury, loss of the creatures". can be achieved by enforcing ESG factors in investment and retail products. Finally, Noordin et. al (2016) identified that the *SRI sukuk* is more stringent in terms of issuance compared to the USA's SIB Act. This is because significant emphasis has been given for proper reporting and disclosure provided to the *SRI sukuk* stakeholders.

Questions are raised about the industry's capacity to really deliver meaningful and sustainable impacts. Most importantly, what factors, actors and dynamics shape those impacts; and how evaluative data can be collected on an ongoing, cost-effective basis (Brest & Born, 2013). In these schemes, investors take all or part of the risk of non-performance, sometimes without guarantee of principal (Maier & Meyer, 2017). Berndt et. al (2018) concluded that the measurement of risk, evaluation and evidence-production are important to enable SIBs in the market. Relevant to this paper are the financial approach (risk-return) and non-financial approach (social aspects and impact) (Clifford and Jung, 2016). The lack of interest showed by classic investors for SIBs may be partly explained by the absence of a financial formulation of aspects related to SIBs (Schinckus, 2018).

Literature in terms of risk evaluation and social uncertainty evaluation exist in the field. The literature dealing with financial valuation mostly focuses either on the estimation of social impact (Benedikter, 2011) or a mere contextual cost – benefit analysis when the value of a specific SIB must be estimated prior (Schinckus, 2018, Care et. al, 2019). Current definitions of financial risk include the risk of not reaching the intended impact or independent of financial returns and losses or the likelihood that a given allocation of capital will generate the expected social outcomes (Brandesetter et al., 2014). Only four factors are defined as quantitative dimensions: unquantifiable

risk (Barby and Gan, 2014) and the dimensions presented by Nicholls and Tomkinson (2015) represent a link with traditional financial risk measurement. Social uncertainty is also not fully conceptualized at present (Lehmer, 2016). Social uncertainty is more generally known as an indication of the certainty that an output will lead to the stated impact (Puttick and Ludlow, 2013). It presents a special risk-return relation with characteristics like “high-yield” investments (O’Donohoe et al., 2010; Geobey et al., 2012; Brandsetter and Lehner; 2014).

Academics and practitioners have devised their own set of frameworks to value risks and returns. This is because conventional measurement tools have their limitations for evaluating social impact. Academics are focused on understanding whether SIBs are a good fit with the project in intervention and the analytical tools are best suited for the project model and specifications (Chamaki et. al, 2018). This is known as developmental evaluation (Antadze, 2012). In fact, there is a new emphasis on system-wide metrics. One is the Impact Reporting and Investment Standards Initiative (IRIS) of the Global Impact Investing Network. It is an ambitious effort to create, test and refine a common set of terms and indicators for the industry through improving transparency and reducing transaction costs for investors (Impact Report and Investment Standards, 2012). Previously, the methods tend to be based on multi-criteria analysis (MCA) and the weighting and scoring of pre-identified criteria, stated and revealed preference studies and impact-based approaches. Currently, among the main measurements used by academics are Cost Benefit Analysis, Social Accounting, Social Return on Investment and Basic Efficiency Resource Analysis (Mulgan et. al, 2010).

Early works (Liebman and Feller, 2014; Schinkus, 2018; Care et. al, 2019) have initiated a method by proposing an introductory perspective on the pricing of a specific SIB. Dekker et al. (2019) proposed a framework to conceptualize and evaluate social uncertainty using the Serrano -

Cinca methodology. Chamaki et. al (2019) proposes using social benefits and realizable costs savings to measure SIBs. Schinkus et. al (2018) proposed using the Wang method in pricing the Peterborough SIB to include context-dependence. Emerson (2003) uses Social Share Value, Social Equity Ratios and Social Return on Investment to capture the financial and social returns. There are also studies that use SROI to measure healthcare and social settings (Millar et. al, 2013). Watson et. al (2017) identifies SROI as the most developed method with a robust framework for implementation.

Identifying risk, uncertainty and returns are important for the scalability and replicability of SIBs. There is a need for independent evaluation of their outcomes and impacts that promote both accountability and learning, theories of change and engage beneficiary stakeholders (Jackson, 2013). This illustrates the importance of gaining insights to better design and promote the practical applications of impact investing tools, including SIBs.

3. Theory

Yield-To-Maturity (YTM) is the internal rate of return earned by a bondholder who buys a bond certificate today, at market price, and holds it until the maturity, entitling the bondholder to all coupon payments as well as maturity payment (Cox et al., 1985). The term structure of interest rates refers to the relationship between the interest rate and the maturity or horizon of the investment. If the *sukuk* funding instruments are the same as the above, then this valuation theory applies squarely also as the valuation theory for the *sukuk* instruments.

The yield spread is a key metric that bond investors use when gauging the level of expense for a bond or group of bonds. A bond credit spread reflects the difference in yield between a treasury and corporate bond of the same maturity. Non-Treasury bonds are generally evaluated based on the difference between their yield and the yield on a Treasury bond of comparable maturity.

Typically, the higher the risk a bond or asset class carries, the higher its yield spread. When an investment is viewed as low-risk, investors do not require a large yield for holding up their cash. However, if an investment is viewed as a higher risk, investors demand adequate compensation through a higher yield spread in exchange for taking on the risk of their principal declining.

My hypothesis is that there is no difference between: (i) the risks of *SRI sukuk* and similarly rated local corporate bonds and (ii) the risks of *SRI sukuk* and SIBs. Many existing social impact bonds used the municipal bond rate (ranging from 4.3-5.0%); other entrants used the 30-year Treasury bond rate, making the argument that they were saving federal and other governmental funds through their activities. Some of the discount rates with sound supporting arguments were based upon the cost of capital, while others were based upon estimates of the risk inherent in realizing the social impact (Lingane, A., & Olsen, S.,2004).

4. Methodology

The primary dataset used for the *SRI sukuk* will be the available rating rationale by RAM Rating Services Berhad, the Malaysian local rating agency. In its raw form, the report contains the summary of rating action, the rating rationale, key rating drivers and their description, credit challenges, and key financial indicators. The credit ratings are assessed using the corporate credit rating methodology. This report will provide me with the credit risk for the *SRI sukuk*.

In addition, the dataset for the SIBs is obtained from the Brookings Institution Global Impact Bond Database. The Center's research has analyzed the potential of social and development impact bonds to address a wide range of intractable social challenges in high, middle, and low-income countries. Brookings Institution has tracked the development of the global impact bond market across all sectors, providing updates on the characteristics of contracted deals, as well as

analyzing the potential and limitations of this outcome-based financing tool. SIBs in the education sector are chosen as it is in the same category as the *SRI sukuk*. There are currently 13 education SIBs that are being carried out in the world, but only 8 (including *Sukuk Ihsan*) have explicitly announce their YTM. The SIBs include (i) *Mother Teresa Middle School Social Impact Bond*, Canada, (ii) *Educate Girls Development Impact Bond*, India, (iii) *Quality Education India Development Impact Bond*, India (iv) *Improving Math Achievement Among Bedouin Youth*, Israel, (v) *Alumna Social Impact Bond*, Israel, (vi) *Educational Social Impact Bond*, South Africa, (vii) *Utah High Quality Preschool Program*, U.S. and (viii) *Child-Parent Center Pay for Success Initiative*, U.S..

The YTM dataset for Malaysian sovereign bond yields, Malaysian Islamic bond yields, Malaysian AAA-rated corporate bond and sovereign bonds from India, Israel, South Africa, Canada and U.S. are obtained from Bloomberg Terminal.

In order to investigate the possible existence of a difference(s) between YTM of *SRI sukuk* and similarly rated local corporate bonds, the yield curve is plotted for the *Sukuk Ihsan* against the Malaysia Sovereign Curve, Malaysia Islamic Sovereign Curve and corporate-issued AAA-rated bonds. The yield spread is calculated between the *Sukuk Ihsan* and each bond. To evaluate the difference between *Sukuk Ihsan* and other educational SIBs, the yield spread between the SIB and the local sovereign bond is calculated.

5. Findings

5.1. *Sukuk Ihsan* (1st tranche)

A. Descriptive Statistics

Summary descriptive statistics for the *Sukuk Ihsan (1st tranche)*, Malaysia sovereign *sukuk* securities, Malaysian sovereign conventional bonds and Malaysian corporate AAA conventional bonds are presented in Table 1. Comparing bonds with similar maturities, the corporate-issued AAA securities has the highest yield, followed by the *Sukuk Ihsan*, Malaysia Islamic Sovereign Bonds and Malaysia Sovereign Bonds. However, if all KPI targets for the *Sukuk Ihsan* bonds are met, then the Malaysia Islamic Sovereign Bonds have a higher yield. At issuer level, lowest mean yields for the Malaysia Islamic Sovereign is 3.24% for the next 10 years. The mean of the yield of the Malaysian Sovereign yield is 3.95% for the next third to thirty years. The mean yield for AAA rated corporate issued securities is 4.52% over the next three to 15 years.

Table 1: Descriptive Statistics for *Sukuk Ihsan (1st tranche)* vs. Islamic Bonds and Conventional Bonds

1st Tranche	3M	6M	1Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y
<i>Sukuk Ihsan (KPI Not Met)</i>	-	-	-	-	-	4.3	-	-	-	-
<i>Sukuk Ihsan (KPI Met)</i>	-	-	-	-	-	3.8	-	-	-	-
Malaysia Islamic Sovereign	2.4	2.675	2.675	3.257	3.66	3.918	4.095	-	-	-
Malaysia Sovereign Curve	-	-	-	3.26	3.464	3.717	3.879	4.198	4.42	4.682
Malaysia Credit - BNM AAA Curve	-	-	-	4.074	4.266	4.493	4.728	5.02	-	-

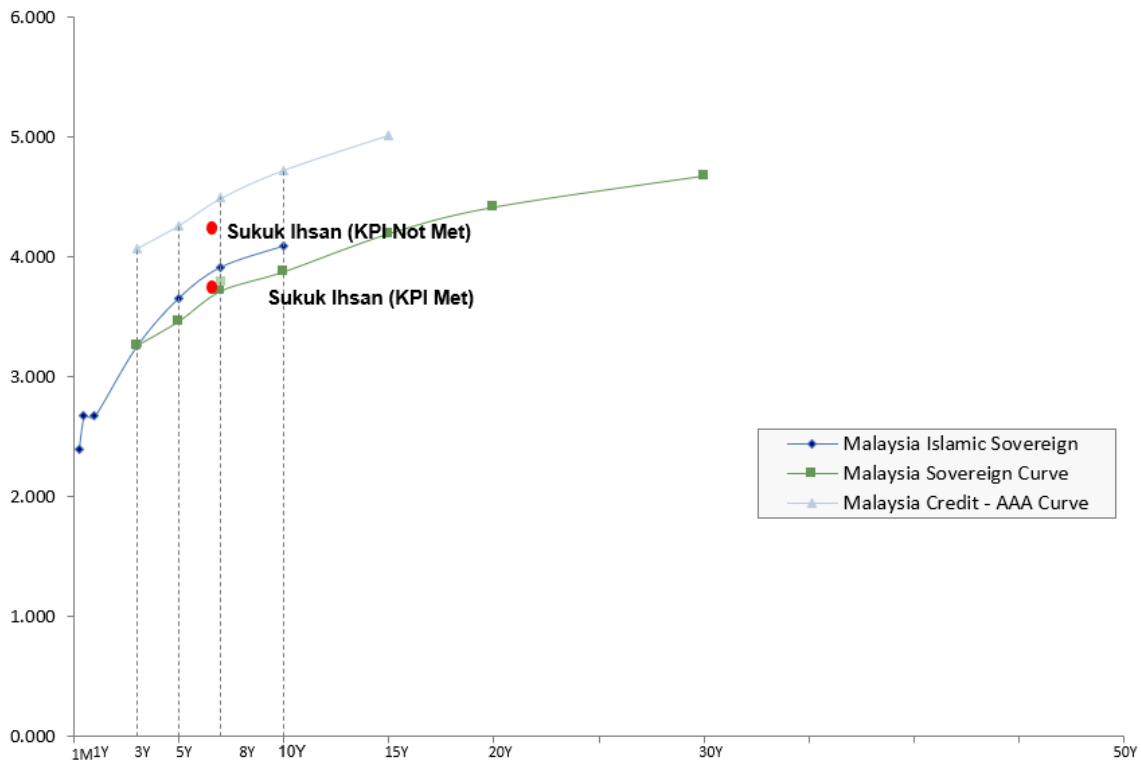
B. Yield Curves

The yield curve shows the relationship between the cost of borrowing and time to maturity of a security for a given issuer. Yield curves for *sukuk* securities and conventional bonds issued by various issuers are plotted as in Figure 1.

The plots are presented from YTM of (i) *Sukuk Ihsan (1st tranche)* against (ii) *other securities* issues in one graph. The four curves are respectively for Malaysian sovereign (government), Malaysian Islamic sovereign (government), Malaysian corporate AAA credit rated

and *Sukuk Ihsan* issuers. The four issuer types are of increasing higher risk rating with sovereign having the lowest risk – therefore with the lowest yields – on the one end, and the *Sukuk Ihsan* issues at the other end.

Figure 1: Yield Curve of *Sukuk Ihsan* (1st tranche) vs. Islamic Bonds and Conventional Bonds



As Figure 1 suggests, the yields of *Sukuk Ihsan* are less than similarly rated corporate issued securities. The difference between yields is a positive figure, indicating that *sukuk* securities tend to yield less than conventional bonds issued by the Government of Malaysia or Bank Negara Malaysia.

The difference between *sukuk* sovereign yield and conventional sovereign bond yield tends to be larger as the maturities increase from 3 years to 10 years. The biggest difference between

yields of *sukuk* sovereign bonds and conventional sovereign bonds is for bonds with 10-year maturities. The difference is 21.6 basis points. For a MYR1000 face value, the sovereign *sukuk* yields MYR 21.6 more than the conventional sovereign bond. This means that the *sukuk* sovereign bonds are valued as riskier than the conventional sovereign bond. This agrees with literature that *sukuk* issues tend to have a higher risk than conventional bonds as *sukuk* holders share the risk of the underlying asset. If the project or business on which *sukuk* are issued does not perform as well as expected, the *sukuk* investor must bear a share of the loss.

Table 2: Yield Spread for *Sukuk Ihsan* (1st tranche) vs. Islamic Bonds and Conventional Bonds

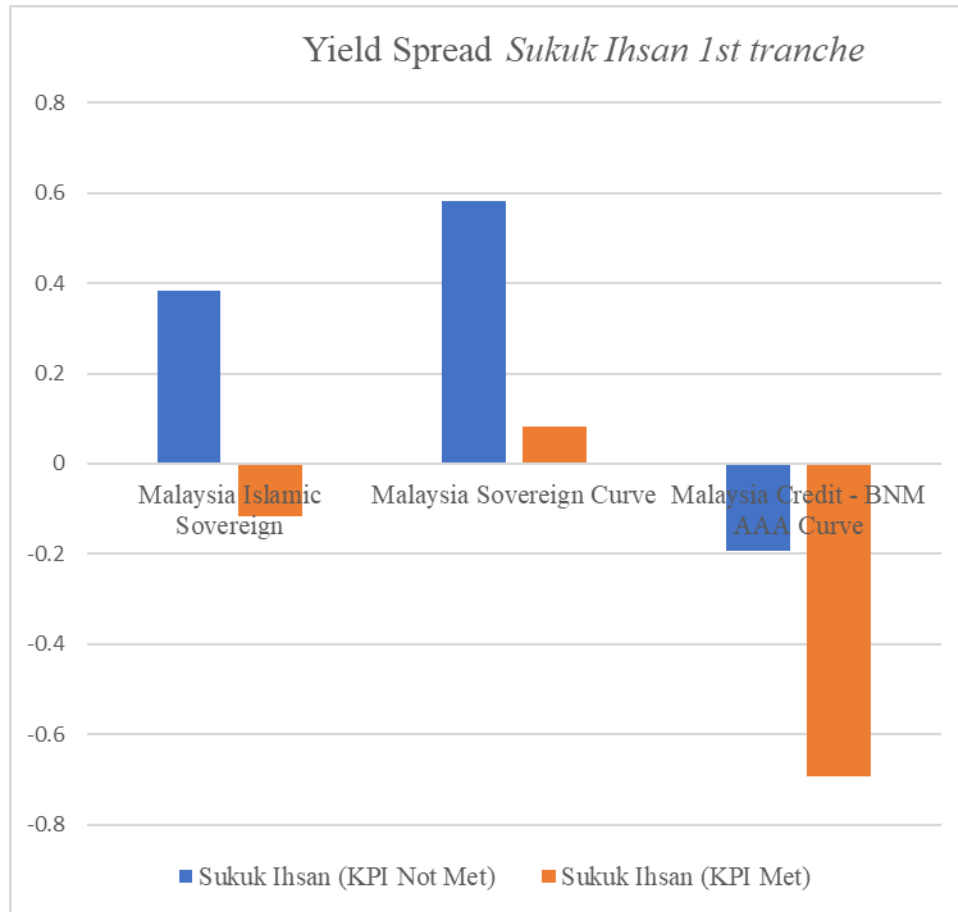
	<i>Sukuk Ihsan (KPI Not Met)</i>	<i>Sukuk Ihsan (KPI Met)</i>
Malaysia Islamic Sovereign	0.382	-0.118
Malaysia Sovereign Curve	0.583	0.083
Malaysia Credit - BNM AAA Curve	-0.193	-0.693

For *Sukuk Ihsan* if the KPI is not met, the yield spread for both the Islamic Sovereign and Malaysia sovereign securities is positive, except for the corporate-issued AAA securities. This means that with the exception of the corporate-issued AAA securities, the *Sukuk Ihsan* has a higher yield. The yield spread between *Sukuk Ihsan* and the Malaysia sovereign securities is the biggest at 58.3 basis points. This means that for a face value of MYR1000, the *Sukuk Ihsan* yields MYR 58.3 more than the conventional sovereign bond. The minimum yield spread is between the *Sukuk Ihsan* and corporate issued AAA-rated securities at 19.3 basis points. For a face value of MYR 1000, the *Sukuk Ihsan* yields MYR19.3 less than the corporate issued AAA-rated securities.

For *Sukuk Ihsan* if the KPI is met, the yield spread for both the Islamic Sovereign and corporate-issued AAA is negative, except for the Malaysia sovereign securities. This means that with the exception of the Malaysia sovereign securities, the *Sukuk Ihsan* has lower yield. The yield spread between *Sukuk Ihsan* and the corporate-issued AAA securities is the biggest at 69.3 basis points. This means that for a face value of MYR1000, the *Sukuk Ihsan* yields MYR 69.3 more than the conventional sovereign bond. The minimum yield spread is between the *Sukuk Ihsan* and Malaysia sovereign securities at 8.3 basis points. For a face value of MYR 1000, the *Sukuk Ihsan* yields MYR8.3 more than the corporate issued AAA-rated securities. The *Sukuk Ihsan* yields a loss of 11.8 basis points compared to the Malaysia Islamic sovereign securities. For a face value of MYR 1000, the Malaysia Islamic sovereign securities yields MY11.8 more than the *Sukuk Ihsan*. This is due to the terms of the *Sukuk Ihsan* itself with the mandatory reduction of 3.18% as the *SRI sukuk* will be redeemed at 96.82% when KPI targets are met.

Overall, the yield spread difference for the *Sukuk Ihsan* when the KPI targets are met versus when the KPI targets are not met are significant (Figure 2). This illustrates the social impact nature of the investment itself where investors give up a significant yield margin when the KPIs are achieved. However, *Sukuk Ihsan* still provides a positive yield spread compared to sovereign conventional bonds as shown in Figure 2.

Figure 2: Yield Spread for *Sukuk Ihsan* (1st tranche) vs. Islamic Bonds and Conventional Bonds



5.2. Other Educational Social Impact Bonds

Previous section showed that the yield of *Sukuk Ihsan* is different from the yield of conventional sovereign bonds. In order to understand if the same relationship still holds for other educational social impact bonds around the world, I evaluate the yield spread of 8 different educational social impact bonds and the issuers' country conventional sovereign bonds.

A. Descriptive Statistics

Summary descriptive statistics for the *Sukuk Ihsan* and other educational social impact bonds around the world are presented in Table 3 and Table 4.

At issuer level, the mean yield of social impact bonds for all types of issuers and for all forms of maturities is 7.61 percent. The yield varies between the minimum of 1.3 percent (*Mother Teresa Middle School Social Impact Bond* with 5 years maturity) and the maximum of 16 percent (*Educational Social Impact Bond* with 7 years maturity). Social impact bonds with issuers from third world countries have higher yields than issuers from first world countries, with a range of 14.7 percent. The maturity length for educational social impact bonds have a range from 4 years to 7 years.

Table 3: Descriptive Statistics of Social Impact Bonds

Yield Difference	Country of Issuance	Year of Issuance	Yield to Maturity, %
<i>Sukuk Ihsan (KPI Not Met)</i>	Malaysia	2015	4.3
<i>Sukuk Ihsan (KPI Met)</i>	Malaysia	2015	3.8
<i>Mother Teresa Middle School Social Impact Bond</i>	Canada	2016	1.3
<i>Educate Girls Development Impact Bond</i>	India	2015	15
<i>Quality Education India Development Impact Bond</i>	India	2018	8
<i>Improving Math Achievement Among Bedouin Youth</i>	Israel	2019	6
<i>Alumna Social Impact Bond</i>	Israel	2015	10
<i>Educational Social Impact Bond</i>	South Africa	2018	16
<i>Utah High Quality Preschool Program</i>	U.S.	2013	5
<i>Child-Parent Center Pay for Success Initiative</i>	U.S.	2014	6

As Table 4 suggests, the minimum bond yield for social impact bonds with a maturity of 5 years is 5 per cent (*Utah High Quality Preschool Program*) and the maximum bond yield is 6 percent (*Child-Parent Center Pay for Success Initiative and Improving Math Achievement Among Bedouin Youth*). The yield difference is small at 1 percent.

Social impact bonds with similar maturities of 7 years have a greater degree of range. The minimum bond yield is 3.8 percent (*Sukuk Ihsan* if the KPIs are met) and the maximum bond yield is 16 percent (*Educational Social Impact Bond*). The range is 11.8 percent.

Table 4 does not suggest that the yield to maturity increases with maturity length, per market convention. Hence, it is important instead to evaluate the yield spreads of all educational social impact bonds according to maturity.

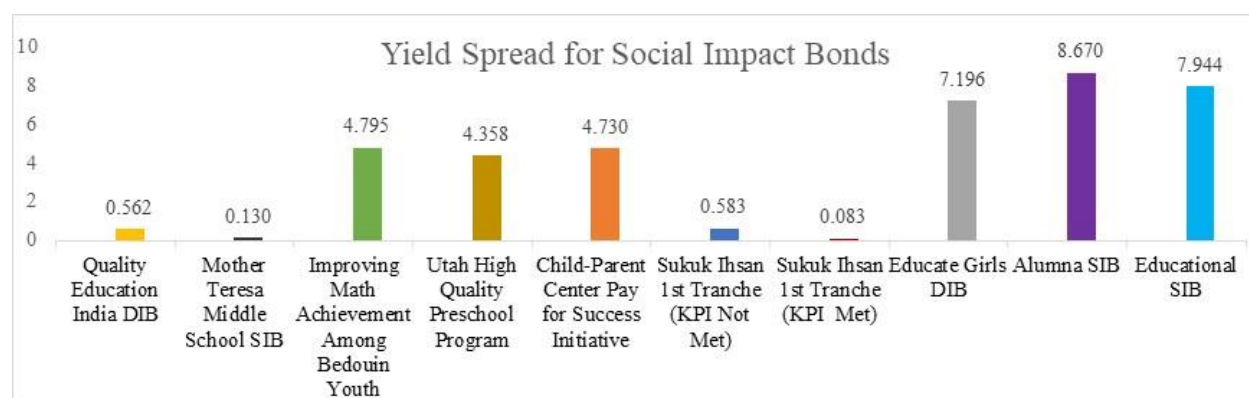
Table 4: Descriptive Statistics of Social Impact Bonds by Maturity

Yield Difference	Country of Issuance	Year of Issuance	Yield to Maturity, %	Maturity Length
<i>Quality Education India Development Impact Bond</i>	India	2018	8	4Y
<i>Mother Teresa Middle School Social Impact Bond</i>	Canada	2016	1.3	5Y
<i>Improving Math Achievement Among Bedouin Youth</i>	Israel	2019	6	5Y
<i>Utah High Quality Preschool Program</i>	U.S.	2013	5	5Y
<i>Child-Parent Center Pay for Success Initiative</i>	U.S.	2014	6	5Y
<i>Sukuk Ihsan (KPI Not Met)</i>	Malaysia	2015	4.3	7Y
<i>Sukuk Ihsan (KPI Met)</i>	Malaysia	2015	3.8	7Y
<i>Educate Girls Development Impact Bond</i>	India	2015	15	7Y
<i>Alumna Social Impact Bond</i>	Israel	2015	10	7Y
<i>Educational Social Impact Bond</i>	South Africa	2018	16	7Y

B. Yield Spread Analysis

Table 5 provides us insight on the yield spread between the social impact bonds and sovereign impact bonds. The yields of social impact bonds and conventional bonds are significantly different for all forms of securities issued of all maturities as shown in Figure 3. The difference between means is a positive figure, indicating that social impact bonds tend to yield more than conventional bonds issued by the sovereign government.

Figure 3: Yield Spread for Social Impact Bonds vs. Sovereign Bonds



The mean yield spread of all social impact bonds is 3.905 percent and the median yield spread for all social impact bond is 4.544 percent. Both the minimum yield spread, and maximum yield spread vary significantly. The *Sukuk Ihsan (if KPI met)* has the lowest yield spread of 0.083 percent. This means that for a face value of MYR1000, the *Sukuk Ihsan* yields MYR8.3 more than the conventional sovereign bond. The *Alumna Social Impact Bond* has the highest yield spread of 8.67 percent. This means that for a face value of ILS1000, *Alumna Social Impact Bond* yields ILS86.7 more than the conventional sovereign bond.

For social impact bonds with similar maturities, the yield spread also varies significantly. The mean yield spread for social impact bonds with 5-year maturity is 3.503 per cent. The median yield spread is 4.544 per cent. For bonds with 5-year maturities, the *Mother Teresa Middle School Social Impact Bond* has the lowest yield spread at 0.13 percent. The *Improving Math Achievement Among Bedouin Youth* social impact bond has the highest yield spread at 4.795 percent. With the exception of the *Mother Teresa Middle School Social Impact Bond*, the other three social impact bonds have similar yields at around 4.5 percent.

The mean yield spread for social impact bonds with 7-year maturities is 4.895 per cent. The median yield spread is 7.196 percent. For bonds with 7-year maturities, the *Sukuk Ihsan (if all KPI met)* has the lowest yield spread at 0.083 percent. The *Alumna Social Impact Bond* has the highest yield spread at 8.67 percent. Except for the *Sukuk Ihsan*, the other three social impact bonds have similar yields at around 7 to 8 percent.

Table 5: Yield Spread of Social Impact Bonds and Sovereign Bonds

Social Impact Bond	Country of Issuance	Year of Issuance	Social Impact Bond Premium	Maturity Length
<i>Quality Education India Development Impact Bond</i>	India	2018	0.562	4Y
<i>Mother Teresa Middle School Social Impact Bond</i>	Canada	2016	0.13	5Y
<i>Improving Math Achievement Among Bedouin Youth</i>	Israel	2019	4.795	5Y
<i>Utah High Quality Preschool Program</i>	U.S.	2013	4.3584	5Y
<i>Child-Parent Center Pay for Success Initiative</i>	U.S.	2014	4.73022	5Y
<i>Sukuk Ihsan (KPI Not Met)</i>	Malaysia	2015	0.583	7Y
<i>Sukuk Ihsan (KPI Met)</i>	Malaysia	2015	0.083	7Y
<i>Educate Girls Development Impact Bond</i>	India	2015	7.196	7Y
<i>Alumna Social Impact Bond</i>	Israel	2015	8.67	7Y
<i>Educational Social Impact Bond</i>	South Africa	2018	7.944	7Y

C. Social Impact Bond Yield Spread versus Market Risk Premium

The market risk premium is the additional return that's expected on an index or portfolio of investments above the given risk-free rate. The yield spread of the social impact bonds and market risk premium is compared to understand the risks and returns.

The market risk premium is greater than the yield spread of the social impact bond for securities with 5 years maturity or less. While, for securities with 7 years maturity or more, the yield spread of social impact bonds is greater than the market risk premium, except for *Sukuk Ihsan*. This means that social impact bonds that have a maturity of 5 years or less are deemed to be safer than the market hence a lower risk and return. On the other hand, social impact bonds with a maturity of 7 years are deemed to be riskier than the market and provide higher returns.

Table 6: Yield Spread of Social Impact Bonds and Sovereign Bonds

Social Impact Bond	Country of Issuance	Year of Issuance	Social Impact Bond Premium	Market Risk Premium	Maturity Length
<i>Quality Education India Development Impact Bond</i>	India	2018	0.562	1.47	4Y
<i>Mother Teresa Middle School Social Impact Bond</i>	Canada	2016	0.130	5.9	5Y
<i>Improving Math Achievement Among Bedouin Youth</i>	Israel	2019	4.795	6.4	5Y
<i>Utah High Quality Preschool Program</i>	U.S.	2013	4.358	5.7	5Y
<i>Child-Parent Center Pay for Success Initiative</i>	U.S.	2014	4.730	5.4	5Y
<i>Sukuk Ihsan (KPI Not Met)</i>	Malaysia	2015	0.883	3.815	7Y
<i>Sukuk Ihsan (KPI Met)</i>	Malaysia	2015	0.483	3.815	7Y
<i>Educate Girls Development Impact Bond</i>	India	2015	7.196	2.4325	7Y
<i>Alumna Social Impact Bond</i>	Israel	2015	8.670	5.2	7Y
<i>Educational Social Impact Bond</i>	South Africa	2018	7.944	2.942	7Y

D. Sukuk Ihsan Comparables

Table 6 suggests that *Educate Girls Development Impact Bond* issued in India and *Alumna Social Impact Bond* issued in Israel are the most comparable to *Sukuk Ihsan* as all three bonds are issued in 2015 and have a maturity of 7 years.

Table 7 shows that *Sukuk Ihsan* remains at the lower end of yield spread with less than 1 per cent while both *Educate Girls Development Impact Bond* and *Alumna Social Impact Bond* have a yield spread of around 7 to 8 percent. The yield spread for *Sukuk Ihsan* is also well below the market risk return while both *Educate Girls Development Impact Bond* and *Alumna Social Impact Bond* have a yield spread higher than the market risk return.

Table 7: Sukuk Ihsan Comparables

Social Impact Bond	Country of Issuance	Year of Issuance	Yield Spread	Market Risk Premium
<i>Sukuk Ihsan (KPI Not Met)</i>	Malaysia	2015	0.583	3.815
<i>Sukuk Ihsan (KPI Met)</i>	Malaysia	2015	0.083	3.815
<i>Educate Girls Development Impact Bond</i>	India	2015	7.196	2.4325
<i>Alumna Social Impact Bond</i>	Israel	2015	8.670	5.2

6. Discussion

My findings show that the *SRI sukuk* is significantly different from similar AAA-rated corporate bonds, Islamic sovereign bond and Malaysia sovereign bond. This agrees with studies that reveal strong empirical evidence that conventional bonds and *sukuk* yields (YTM) are different despite having a similar tenure in Malaysia (Safari et. al, 2013). My findings also reject Saad et. al (2009) findings that in practice, *sukuk* investment does not show a marked difference to conventional bonds with regards to their yields. This means that the *SRI sukuk (when KPI not met)* is riskier than Islamic sovereign bond and Malaysia sovereign bond but less risky than similar AAA-rated corporate bonds.

The possible explanation for *SRI sukuk* having a higher risk than both the sovereign bond and Islamic sovereign bond is because of the additional social risk besides the traditional financial risk. The social risk is dependent on *Sukuk Ihsan* achieving the KPIs. The social impact of this “pay for success” structure is measured using a set of predetermined KPIs, which will be measured over a five-year period. It said if the KPIs are met at maturity, *sukuk* holders will forego a pre-agreed percentage of the nominal amount due under the *SRI sukuk* as part of their social obligation in recognizing the positive social impact generated. On the other hand, if the KPIs are not met, the *sukuk* holders will be entitled to the nominal amount due under the *SRI sukuk* in full.

Given that the *Sukuk Ihsan* is fully backed by Khazanah National Berhad and has utmost significance in being the world’s first *SRI sukuk*, there is high possibility that the KPIs are met and

the social projects be completed. Hence, it makes sense that it is less risky than similarly rated AAA corporate-issued bonds. However, further studies should be done to understand why the yield of Islamic sovereign bonds is higher than the *SRI sukuk* when KPIs are achieved.

My findings also show that there exists significant difference between *SRI sukuk* and other educational social impact bonds. *Sukuk Ihsan* has a smaller yield spread than all educational social impact bonds, including social impact bonds with the same issuance year and maturity. This might be related to its AAA credit rating. The credit rating is AAA, as it reflects Khazanah National Berhad fully backing this *sukuk* obligation. In assessing the credit risks, the AAA(s) rating is supported by Khazanah's role as obligor under the Purchase Undertaking to buy the *sukuk* holders' interest in *sukuk* investments as well as its commitment to make deferred payments pursuant to the Commodity *Murabahah* Investment in order to fully meet obligations under the *Sukuk Ihsan*. Another unique feature of this *Sukuk* is that it allows *Sukuk* holders to convert their investment in the *Sukuk* into a donation at any point during the tenure, unlike other social impact bonds. Hence, we can assume that this donation feature of the *sukuk* attracts investors who are mainly seeking to fulfill CSR obligations and are not profit-seeking investors.

7. Conclusion

The *SRI sukuk* is a financing instrument that could utilize Islamic finance to tap into the growing social impact investment markets around the world. To further contribute to the development of *SRI sukuk*, this paper provides a critical review on how the *Sukuk Ihsan* compares to Malaysia sovereign bonds, Malaysia Islamic sovereign bonds, Malaysia corporate issued AAA-rated bonds and other educational social impact bonds. I find that the *SRI sukuk* is significantly different from similar AAA-rated corporate bonds, Islamic sovereign bonds and Malaysia sovereign bonds. The *SRI sukuk* is riskier than Islamic sovereign bond and Malaysia sovereign

bond but less risky than similar AAA-rated corporate bonds. To determine if the *SRI sukuk* carries with similar risks and returns with other educational social impact bonds around the world, I found that there exist significant differences between *SRI sukuk* and other educational social impact bonds. The yield spread of *SRI sukuk* and sovereign bonds tend to be on the lower side when compared with educational social impact bonds and is attributed to its credit rating and bond structure.

Looking beyond the primary foci of evaluating the risk and return of the *SRI sukuk*, my analysis also contributes to the wider debate of investing in social impact bonds. I find that SIBs provide a higher return than sovereign bonds, and the yield spread is significantly bigger in developing countries than developed countries. Hence, investors looking to earn a return while fulfilling CSR objectives can invest in SIBs.

Finally, it is necessary to reflect on the limitations of my study. I do not address the pricing mechanisms of the *SRI sukuk* and SIBs and how it influences the risks and returns as it is not available. Hence, issues such as how much of the social risk is priced into the SIBs could not be addressed. The sample size is also small as out of the 26 educational SIBs in the world, only 8 of them have publicly disclosed their investors' returns. Public disclosure of related information is key to further develop the industry and understand the effectiveness of SIBs. Looking forward, further research can be done to include the 2nd tranche of the *Sukuk Ihsan* and evaluate if the success of the 1st tranche of *Sukuk Ihsan* affects the pricing, risk and returns of the 2nd tranche of *Sukuk Ihsan*.

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