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The Importance of New Technologies and Entrepreneurship in Business Development: In The Context of Economic Diversity in Developing Countries

The Impact of New Technologies and Entrepreneurship on Business Development

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Islam Elgedawy
Editors

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The Impact of New Technologies
and Entrepreneurship on Business
Development

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Foreword

The present business environment has been tumultuous due to the emerging new challenges resulting from innovative development and disruptive technology. Consumer demands for innovative products and services have urged business fraternity to be responsive and resilience in combating those new requirements.

The Fourth Industrial Revolution is characterized by the combination of physical and digital technologies, such as analytics, artificial intelligence, cognitive computing, machine learnings and the Internet of things (IoT). This would certainly impact the companys' business direction, the future industries, the customers, the employees and the society at large. The advancing technologies are bringing about social changes and economic development. As such, organizations are required to adapt to the new environment and strengthen their strategies despite the risk and uncertainty in the environment. New business integration strategies must be leveraged to ensure companies continue to sustain.

To anticipate the rapid change, education is set forth to be more innovative in offering the future ready curriculum. As such, education organizations and scholars are expected to be malleable and creative in designing new curriculum that embrace new technologies, integrating strong entrepreneurship values, fostering positive values and socio-emotional skills throughout the curriculum in order to produce quality and competent future human capitals that are ready to serve the future industries.

In is a privilege for the Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, to co-publish this book in promoting the excellent and cutting-edge research by scholars from around the globe. I trust, this book would benefit many parties and be able to aspire everyone in developing buoyant strategies that gives positive impact and consciousness to sustain in any endeavor.

Roselina Ahmad Saufi

Preface

In today's globalized environment, the process of creation and development of business became more and more challenging and complex. Entrepreneurial actions and advanced technology are the most important features of the recent developed economies and ones of the factors contributing to business development. Countries became more connected by and through technology, gadgets, and continuous and intense technological development, the business environment and the trajectory traveled by entrepreneurs to create a more competitive business environment. Innovation has become vital everywhere and business managers should always be prepared to find out new innovative solutions and ideas, so that, can maintain the sustainability of the business in the current and future competitive business environment. New technology refers to the use of computing machines, artificial intelligence, big data, deep learning, game-based learning, information technology, management information system, accounting information system, knowledge management and devices to store, capture, manipulate and retrieve shared knowledge. Therefore, the integration between modern technology, entrepreneurship and business should be well managed so to provide a wide range of high quality and competitive products and services in societies, especially in developing countries. The objective of this book chapter is to conduct a review, examine, analysis and discussion relating to the importance and the impact of new technologies on the development and sustainability of a business in developing countries in the context of economic diversity.

This volume constitutes the refereed proceedings of the International Conference on Business and Technology (ICBT 2020) organized by EuroMid Academy of Business and Technology (EMABT), held in Istanbul, between November 14–15, 2020. The ICBT 2020 partners and supporters were: United Business Institutes—Belgium, AACSB Accreditation—USA, Universiti Malaysia Kelantan—Malaysia, National University of Life and Environmental Sciences of Ukraine—Ukraine, ARCIF Analytics, E-MAREFA—Jordan. In response to the call for papers for ICBT 2020, 245 papers were submitted for presentation and inclusion in the proceedings of the conference. After a careful blind refereeing process, 151 papers were selected for inclusion in the conference proceedings.

The ICBT 2020 proceedings contains one hundred and fifty-one chapters by the authors from thirty-six countries. Each of these chapters was evaluated through an editorial board, and each chapter was passed through a double-blind peer review process; hence bestowing Fourteen themes:

- I. Implementation of artificial intelligence, IoT and innovative.
- II. Sustainable finance, innovation and business uncertain situations.
- III. Marketing, E-commerce and social media.
- IV. Supply chain quality management practices and blockchain technology.
- V. Tourism, technology and hospitality and health care services.
- VI. Fourth Industrial Revolution implementation of artificial intelligence and FinTech for growing business success.
- VII. Public administration and digital economy.
- VIII. Entrepreneurship, start-up and business success and social implications.
- IX. Corporate finance and accounting.
- X. Islamic economics and finance.
- XI. Corporate social responsibility.
- XII. Business management, HR and business success.
- XIII. Education management, technology, smart universities and Covid-19 impact.

These chapters are reflecting quality research contributing theoretical and practical implications, for those who wise to apply the technology within any business sector. It is our hope that the contribution of this book will be of the academic level which even decision-makers in the various economic and executive level will get to appreciate.

Finally, we express our sincere thanks to the plenary speakers; Prof. Olaf Weber from University of Waterloo—Canada, Prof. Khaled Hussainey from University of Portsmouth—UK, Prof. Timothy Mescon from AACSB International—USA, Prof. Roselina Ahmad Saufi from Universiti Malaysia Kelantan—Malaysia, Prof. Munira Aminova from United Business Institutes—Belgium and Prof. Suliman Hawamdeh from University of North Texas—USA.

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The Challenges of Developing the Saudi Sukuk Market in Line with Objectives of Vision 2030

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Abstract. The paper aim to explore the impact of five challenges on the development of sukuk issuances market in the Kingdom in line with the financial sector development plans within vision 2030 objectives. The study adopted quantitative method by distributing a questionnaire to 115 experts involved in the Saudi sukuk market. The results have been analyzed by Smart PLS 3, and it showed a statistically significant effect on the relationship between the five challenges and the sukuk market development in the Kingdom. At the level of sub-challenges, the results have showed that there was no statistically significant impact between the legal framework regulating sukuk issuance in the Kingdom and sukuk market development. While there was a statistically significant impact of the other four challenges on sukuk market development, namely: (1) *Shari'ah* governance, (2) secondary market activation, (3) the credit rating (4) yield curve. The research has recommended setting a mandatory framework of *Shari'ah* governance for sukuk issuance, allowance to retail investors for trading in sukuk, requiring sukuk issuers to credit rating the local sukuk issuance, and finally announcement of the yield curve on Saudi government sukuk and considering it as a benchmark pricing index.

Keywords: Sukuk · Sukuk challenges · Sukuk development · Saudi vision 2030

1 Introduction

In late 2014 during the collapse of oil prices and exposing most of the public budgets of the Gulf countries to a long-term deficit, and constant burden on their economic. The Saudi kingdom had started effectively planning for economic transformation and diversification, through reducing the level of dependency on oil as a major source of government revenue. Which lastly resulted in issuing the Saudi vision of economic transformation (Vision 2030) in April 2016. The Saudi vision 2030 includes a set of programs in order to achieve the vision objectives. Among these programs is the Financial Sector Development Program (FSDP) which includes three strategic goals namely: (1) Ensure the formation of an advanced capital market, (2) Enable financial institutions to

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support private sector growth, (3) Promote and enable financial planning (The Kingdom's Vision 2030, 2016).

One of the challenges stated in the FSDP was, the high dependency on bank financing in all financial services market. In addition, declining the contribution proportion of debt instruments (Bonds & Sukuk) in financing compared to stock markets, as shown in the following Fig. 1.

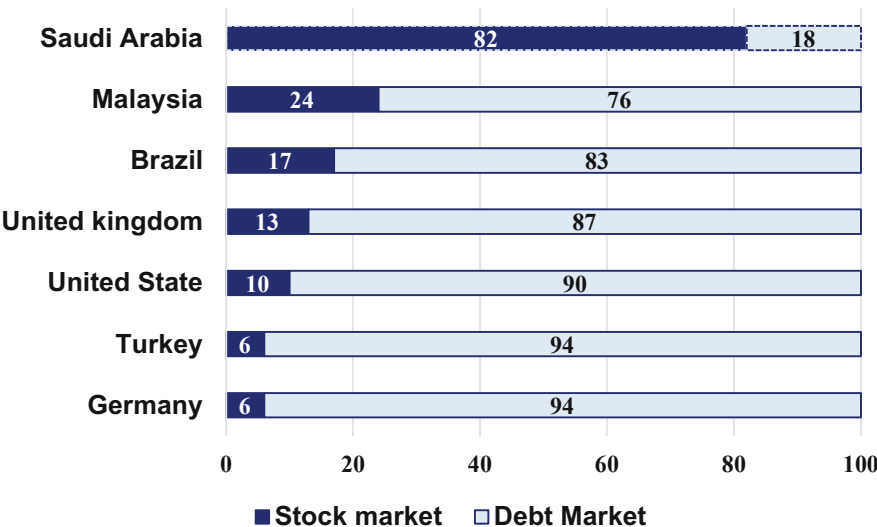


Fig. 1. The ratio of the stock market and debt markets to the total money market financing in some countries and the Kingdom of Saudi Arabia for the year 2016 (%) **Source:** (The Kingdom's Vision 2030 2016), Financial Sector Development Program, P. 22.

The Fig. 1 illustrates that the Saudi capital market is mainly driven by equity financing compared to debt instruments which includes bonds and sukuk financing. Where the equity financing touched 82% compared to only 18% for debt instruments out of total capital market in the kingdom. Contrary to the financing proportion by debt instruments market with the comparative countries as shown in the same figure. Where debt instruments market is dominated the total financing of capital market as following (Malaysia 76%, Brazil 83%, United Kingdom 87%, United State 90%, Turkey 94% and Germany 94%).

According to what was targeted by FSDP regarding debt instrument market development. The strategic plan of Capital Market Authority (CMA) of the Kingdom encompassed Financial Leadership Program (2019–2021), where contains four themes for developing the financial sector. Theme one is “Facilitating Fund”, it is divided into three main strategic objectives, the second strategic objective of them is “ developing sukuk and debt instruments market” which contained several strategic initiatives for market development namely: (1) Collaborating with concerned parties to support the growth and development of the sukuk and debt instrument market, (2) Improving the procedures for offering and listing sukuk and debt instruments, (3) Collaborating with

government bodies to address the procedures for calculating zakat with the aim of motivating issuance and trading, (4) Contributing to the development of a strategy for the regulation and development of Islamic financial services. (Capital Market Strategic Plan “2019–2021”, 2018)

Regarding the sukuk market, since the first issuance in 2006 to 2016 the Saudi sukuk market has been characterized by feebleness and fluctuation of the issuance volumes. However, in 2017 there has been a dramatically increase in sukuk issuance and its regularity. In 20th July 2017 the Saudi Ministry of Finance representative in debt management office has embarked on issuing the sovereign sukuk program in Saudi Riyal with unlimited tenure and volume. Where the ministry of finance through this debt management office can issue sukuk and offer them to the investors (Al-Naggar 2018). As a result of that, the Kingdom has ranked in the second position globally after Malaysia, and it has ranked the first position among the Arabian Countries. In addition, the Saudi Kingdom recorded significant increase in the total of issuances volume at \$28.6 - \$18.5 - \$33.9 billion for years 2017, 2018, and 2019 respectively (Ideal Ratings Sukuk Data Base), as shown in the following Fig. 2.

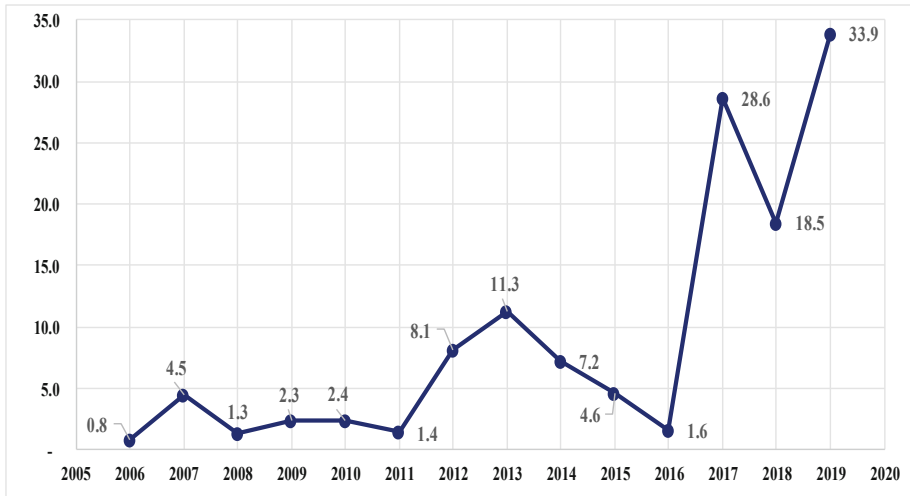


Fig. 2. The value of Sukuk issued in the Kingdom of Saudi Arabia for the period 2006–2019 (in Billion Dollars). **Source:** Ideal Ratings Sukuk Data Base.

The significant growth of sukuk issuance value in the Kingdom during the period of 2017–2019 was not due to an activation in sukuk issuances by companies or non-government issuers. But rather mainly due to consecutive government sukuk issuances in order to finance the public budget deficit. Where the sovereign sukuk issuances (local and international) accounted for 86%, 81%, and 94% of the total Sukuk issuance in the Kingdom during years 2017, 2018, and 2019 respectively. (Ideal Ratings Sukuk Data Base).

Therefore, the research importance is shown in explaining the nature of the challenges that the Saudis’ plans may face in its way of having an advanced position in the sukuk

market globally. That is through seeking the opinions of experts and key player in the sukuk market to identify these challenges and recognize their level of impact on the future of sukuk industry in the Kingdom. As well as, the research outcomes would benefit experts and the Saudi sukuk market stakeholders in respect to improving the predictability of sukuk market future in the Kingdom and taking more accurate and informative decisions. In addition, fulfilling time and methodological research gaps in the Saudi sukuk market. Thus, the research seeks experts and stakeholders' opinions regarding the five earlier mentioned challenges. As well as, identifying the level of impact of challenges on sukuk industry development in the Kingdom.

The paper is organized as follows. Section 2 reviews the related literature and proposed relationships in the hypothesis. Section 3 elaborates the research problem. Section 4 describes the research methodology and data collection; procedure. Section 5 analyzes the data and presents the results. Section 6 hypothesizes testing. Section 7 discusses the research findings. Finally, Sect. 8 concludes the paper, recommendations, research limitations, and future research.

2 Literature Review

There is a lack in the recent studies in respect to the challenges facing the sukuk market development in the Kingdom of Saudi Arabia. After reviewing many relevant studies, the authors have come up with the most important relevant findings of the previous studies as following:

Some of the previous studies discussed the regulatory and legal framework of the sukuk issuance in the Kingdom. These studies concluded that there is no coherent regulatory framework takes into consideration the unique features of sukuk. Where the legal framework during conducting these studies does not distinguish between bonds and sukuk. And these studies have recommended that the Kingdom should benefit from the other countries that have regulatory experience in sukuk issuance, such as Malaysia and United Arab Emirates (AlShamrani 2014; Al Nemer 2011; Aljaafari 2011; Al Omari 2011; Elsheikh 2010).

There are some other studies concerted on substantial three *Shari'ah* issues affecting the sukuk market in the Kingdom which are: (1) contradictions and differences among the diverse fiqhi schools regarding the sukuk structures, (2) the absence of consolidated *Shari'ah* standards for sukuk issuance in the Kingdom, (3) the majority of sukuk issuances are not *Shari'ah* compliant. The studies have recommended the necessity of appointing a central *Shari'ah* board in order to consolidate fatwa for all sukuk issuance. As well as, the importance of finding a solution for the inconsistency's opinions among *Shari'ah* boards in the Kingdom. In addition, adopting the *Shari'ah* standards of Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) as a basement for sukuk issuance in the kingdom (Al Ajlan 2010; Elsheikh 2010).

Another study discussed the importance of credit rating for the issued sukuk. And the study has recommended establishing a local credit rating agency for sukuk issuance in the kingdom for the purpose of enhancing the level of trust for the issued sukuk as well as supporting the sukuk secondary market (Elsheikh 2010).

Al-Saeed (2012) had exposed to corporate sukuk issuance in the Kingdom and analysed the sukuk issuances during the period of 2004–2010. And the study has concluded

that sukuk is one of the best solutions for corporate long-term financing in the kingdom. As well as, the study has found positive expectations for sukuk market in the kingdom correlating to its eminent position in the global oil market and its surplus liquidity.

Another study has indicated that sukuk structures would influence the risk profile or the expected yield of sukuk. As a result of that, the study attempted to evaluate risks related to sukuk structures through conducting various statistical models. And the study has concluded that the factors affecting sukuk risks do not reflect the gained returns in the sukuk market (Alswaidan 2017).

Alswaidan (2013), Naifar (2016) have evaluated sukuk yields from two aspects, the first aspect is the extent of the correlation between sukuk yield and the Saudi sukuk market fluctuations. The second aspect is the comparison between the yields of the issued sukuk in Saudi Kingdom and their counterparty in different places in the world. The studies have concluded that the Saudi sukuk market is distinguished with constancy positive returns on the issued sukuk. Moreover, there is a negative correlation between the issued sukuk yields and stock markets fluctuations. Which is proved the importance of diversifying the investment portfolios components between sukuk and equity.

Most of the earlier mentioned studies adopted the inductive approach, while this research is adopted the descriptive analysis approach as well as adopting the quantitative method to come up with more accurate and reliable results. In addition, the previous mentioned studies did not conduct a primary data collection in their studies except two studies. Al-Saeed (2012) included semi structured interview questions and focused group discussions. Al Nemer (2011) has conducted a survey to recognize the experts' opinion regarding the future of sukuk market and the importance of applying a robust regulatory framework for sukuk issuance in the Kingdom using a questionnaire containing only eight questions. While in this current research the questionnaire focusses on analytical outcomes related to the impact of challenges may face the kingdom in developing sukuk market. As well as, identifying the impact of these challenges within the growth and evolution of sukuk market. Besides, most of the previous studies within the period between 2004–2013, and to the best knowledge of the researchers there is no any recent study focusing on sukuk development in the Saudi kingdom.

Therefore, the study variables include five independent variables namely: legal framework, *Shari'ah* governance, secondary market, credit rating and yield curve. As well as, one dependent variable namely sukuk development market. The study seeks to test one main hypothesis and five sub-hypotheses to identify the impact of challenges (legal framework, *Shari'ah* governance, secondary market, credit rating and yield curve) on sukuk development market in Saudi Arabia. The main hypothesis of the study is:

H1: There is a significant relationship between the challenges that facing Saudi sukuk market and sukuk market development. The sub-hypotheses of the study are:

H1.1: There is a significant relationship between legal framework and the sukuk market development.

H1.2: There is a significant relationship between *Shari'ah* governance and the sukuk market development.

H1.3: There is a significant relationship between secondary market and sukuk market development.

H1.4: There is a significant relationship between credit rating and sukuk market development.

H1.5: There is a significant relationship between yield curve and sukuk market development.

3 Research Problem

The Kingdom of Saudi Arabia aims to develop the sukuk market and increase its contribution to the financial services market as a part of developing the financial sector in the Saudi vision 2030. Thus, providing more alternatives for projects financing in the Kingdom, therefore increasing the local investment rates.

Nonetheless, many studies in the literature rereview indicated that the Saudi sukuk market is not yet ready to achieve this development. In addition, there are many challenges facing this desired development. Hence, the main research problem can be defined by searching for the extent of the willingness of the Saudi sukuk market to achieve this desired development within vision 2030, with taking into consideration many other factors that should be addressed to achieve this goal. Through reviewing many previous studies that analyzed sukuk issuances in Malaysia being the most prominent country in sukuk issuance globally (Ghafoor et al. 2018; Uddin and Afroz 2018; Bin Musta 2011; Said and Grassa 2013; Haron and Ibrahim 2012). The authors have determined five factors are considered essential factors for sukuk issuance development in any country. At the same time, these factors are considered as challenges must be dealt with positively in order to achieve the desired development. These challenges are: (1) The legal framework regulating sukuk issuance, (2) *Shari'ah* governance for sukuk issuance, (3) Activation of secondary market for trading sukuk, (4) Credit rating for sukuk issuance, (5) Completed yield curve for sukuk issuance. Therefore, the research problem concentrates on figuring out the impact of these challenges and factors on the development and growth of sukuk issuances in Saudi market. Hence, identifying the required development aspects.

4 Methodology

The research adopts the quantitative research design by collecting primary data to answer the research questions and to test the hypotheses. The questionnaire is designed to include two parts: the first part includes demographic information about the respondents, including education, position, nationality, place of current residence, administrative level and participating in sukuk issuance. The second part contains totally six sections, five sections of them are distributed to cover the five independent study variables, each section contains four items. As well as, one section contains five items to cover the dependent study variable. The six sections totally contains 25 items in a form of closed questions.

For the sample size and type, the data was collected via self-administrated survey purposive sampling method. Purposive sampling would be the appropriate method available for such study, due to the limited number the sources of primary data (Ilker et al. 2016). The respondents of this study have expertise and knowledge in Saudi sukuk market which may increase the degree of reliability of the questioner outcomes. Respondents sample contains of many different high positions in treasury, corporate finance, *Shari'ah*

departments of various financial institutions, some academicians with *Shari'ah* backgrounds who have experience in issuing sukuk in the Kingdom. With regards to sample size, Hair Jr. et al. (2006) suggested that the minimum ratio of observations to parameters ($N:q$) should be 15 to 1, meaning that 15 participants are needed per indicator/variable. Other researchers advocate that higher values are preferred (Kline 2005). The rule of thumb in this area is 20 participants per variable. The current study consists of 6 variables; therefore, the minimum sample size should be at least 120 participants.

The study sample size ($N = 115$) followed the ratio of 5:3 per item as recommended by (Hair Jr. et al. 2006). The survey was conducted during the period from 21 February 2020 to 23 May 2020 (approximately 13 weeks). The total number of distributed survey questionnaires was 160. The respondent's sample was only 115 questionnaires, which represents approximately 72% response rate. The sample size of 115 experts was considered as sufficient for the study.

For analysing the data, the research has examined the normality test through using SPSS version 22 software. As well as, the research adopted Structural Equation Modeling (SEM) for hypotheses testing by using Smart PLS 3 software.

5 Results and Discussion

In this section the authors cover the data analysis results commencing with normality test as well as assessing measurement model or outer model include convergent validity, ascertaining internal consistency reliability, discriminant validity and assessment of the significant of the structural model. Lastly, the main and sub-hypotheses testing results by adopting SEM model.

5.1 Skewness and Kurtosis

Schmider et al. (2010) and Ghozali et al. (2005) indicate that the data are normal distribution if the Z-value skewness has to be less than ± 3 and the Z-value kurtosis is less than ± 7 . In addition, a small sample size approximately 50 cases and below represents serious influence on normality compared to the large sample size (200 cases and above). In this research, the authors followed the guideline suggested by Hair Jr. et al. (2006) to consider the cut-off critical value ± 2 . Table 1 shows that the value of kurtosis and skewness for every construct is within the range (± 2). The descriptive analysis illustrate that almost normal distribution with mean skewness ranged between -1.554 and 0.086 . While kurtosis values ranged between -1.334 and -0.476 . Table 1 indicates skewness and kurtosis for variables.

5.2 Histogram

The normal distribution is the most important and most widely used distribution in statistics. It is sometimes called the "bell curve," although the tonal qualities of such a bell would be less than pleasing. It is also called the "Gaussian curve" after the mathematician Karl Friedrich Gauss (Hair Jr. et al. 2006). The standard deviation is the measure of how spread out a normally distributed set of data is. It is a statistic that tells you how

Table 1. Skewness and Kurtosis for variables

Variables	Code	Kurtosis	Skewness
Legal framework	LF	0.664	−0.968
<i>Shari’ah</i> gov.	SG	−0.476	−0.319
Credit rating	CR	−1.334	−0.107
Secondary market	SM	−0.628	0.233
Yield curve	YC	0.975	−1.554
Sukuk market dev.	SMD	−1.050	0.086

closely all of the examples are gathered around the mean in a data set. The shape of a normal distribution is determined by the mean and the standard deviation. Figure 3 shows standard deviation is 0.996 closed 1.

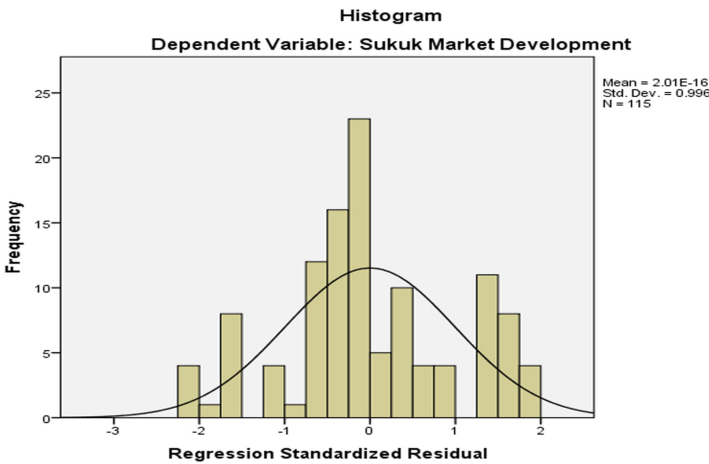


Fig. 3. Error normality tests

Correlation Matrix Among Variables

Correlation matrix tests the strength and weakness of relationship between variables and multicollinearity test. Multicollinearity can be indicated by correlation larger than 0.80 among independent variables. If the value of correlation between two different variables exceeds 0.80, this will be considered as multicollinear (Hair Jr. et al. 2006). Multicollinearity, i.e. when there are very high correlations between two or more independent variables, can be problematic.

The findings of the study indicated that the highest correlation was (SG) and Senior (CR) with 0.718. This is followed by (SM) and (CR) was 0.689 and p-value was 0.000. On the other hand, the lowest correlation among independent variables was (LF) and

(SM) with 0.486 and p-value was 0.000. The study' findings demonstrated that multicollinearity was not a problem among the variables (Sekaran 2003). Table 2 below presents the correlation matrix between the latent variables.

Table 2. Pearson correlation among the variables

	LF	SG	SM	CR	YC
LF	1				
SG	.556**	1			
SM	.486**	.667**	1		
CR	.523**	.718**	.689**	1	
YC	.611**	.553**	.513**	.603**	1

**significant at 99%

Assessment of Measurement Model/Outer Model

The Smart PLS program is one of the appropriate programs to tests the models and hypotheses. Smart PLS is characterized by providing a technology for building models with small sample such as a sample of experts in a specific field because of the difficulty of reaching a larger sample size of the target sample (Sander and Lee 2014). A number of experts have determined the appropriate sample size for the program from 51 to 200 cases compared to the AMOS software that deals with large sample, that is, more than 200 cases (Shackman 2013). The measurement model dealt with the relations between the observed variables and the constructs. Items which represented the observed variables measured the constructs.

Convergent Validity

Ramayah et al. (2011) define convergent validity as “the degree to which multiple items that measure the same variable are in agreement”. The assessment of convergent validity was a fundamental part of assessing measurement model. According to Hair Jr. et al. (2019), convergent validity is confirmed when items load highly (greater than 0.70 or 0.60 in exploratory research) constructs have an average variance extracted (AVE) of at least 0.5. In order to achieve adequate convergent validity, Chin (1980) recommended that AVE of each latent construct should be 0.50 or more. In this study, AVE values high loading more 0.50 (See: Appendix 1: and Fig. 4).

Ascertaining Internal Consistency Reliability

Cronbach's alpha and composite reliability coefficient are the most frequently used to estimate the internal consistency reliability of items in management and marketing research (Peterson and Kim 2013). The composite reliability coefficient was chosen to ascertain the internal consistency reliability of measures adopted in the present study. Because it provides a much less estimated of the bias of the reliability than Cronbach's alpha coefficient. In this study, internal consistent reliability using composite coefficient

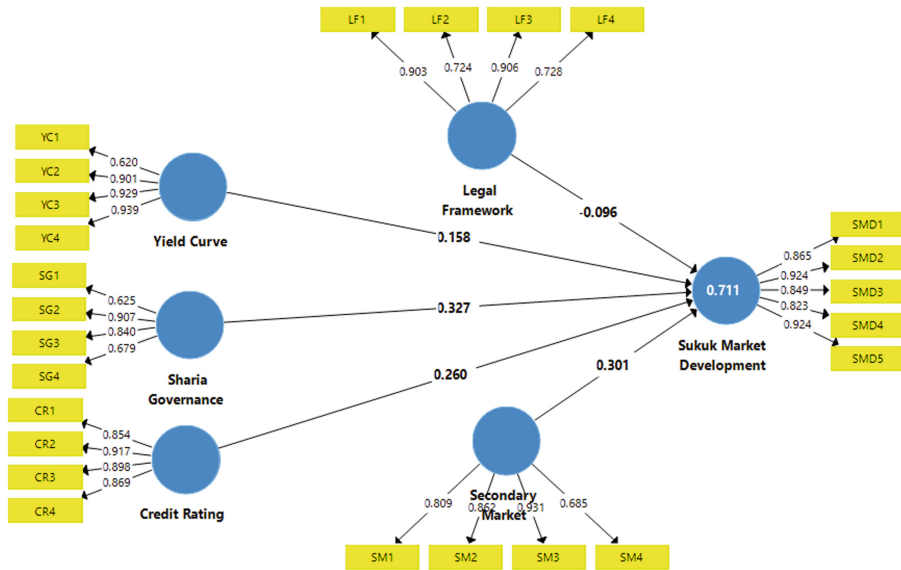


Fig. 4. Measurement model/outer mode

was chosen based on the rule of thumb provided by Bagozzi and Yi (1988). In addition, composite reliability coefficient should be at least 0.70 or more.

The present study reveals the reliability (Cronbach's alpha) in Appendix 1. The values ranged from 0.762 to 0.925 while composite reliability (CR) values ranged from 0.852 to 0.944. Therefore, all values for composite reliability and Cronbach's alpha are greater than the recommended value of 0.60 (Barclay et al. 1995a, b). Moreover, AVE values ranged between 0.595 and 0.783. Appendix 1: indicated the factor loading for items and Cronbach's alpha with composite reliability and AVE for variables.

Discriminant Validity

Discriminant validity "is the degree to which a construct is truly different from other constructs and determines whether the measurement is unrelated, as well as how many indicators represent only a single construct" (Hair Jr. et al. 2014). Fornell and Larcker (1981) proposed a measure to look at the discriminant validity. If the diagonal elements are being viewed as higher than the elements in other off diagonal in their related columns and rows, then we can make the comparison and assume the discriminant validity. As depicted in Table 3 below, the results in the correlation matrix ensure that the discriminant validity is confirmed.

Discriminant validity was indicated, as the AVE values are more than the squared correlations for each set of constructs. In addition, the square root of the AVE for a given construct was greater than the absolute value of the correlation square of the given construct with any another factor ($AVE > \text{correlation square}$). Table 3 shows the square root of the AVE for all constructs greater than the correlations between the construct and other constructs in the model as shown in Table 3, the values of AVE ranged between 0.595 and 0.783 suggestion acceptable values. Table 3 shows that the square root of the

Table 3. Discriminant validity for latent variables

	AVE	SMD	LF	SG	SM	CR	YC
SMD	0.771	0.878					
LF	0.672	0.459	0.820				
SG	0.595	0.747	0.580	0.771			
SM	0.684	0.769	0.504	0.734	0.827		
CR	0.783	0.717	0.494	0.655	0.696	0.885	
YC	0.735	0.596	0.546	0.538	0.607	0.511	0.857

average variances extracted were all greater than the correlation among latent constructs, suggesting adequate discriminant validity.

Assessment of the Significant of the Structural Model

This part presents the results of the structural model and test of hypotheses. Specifically, the section is concerned with the testing of hypotheses related to moderating and mediating effect. This present study applies the PLS standard bootstrapping procedure with a number 2000 bootstrap sample and 115 cases to assess the significant of the path coefficient (Hair Jr. et al. 2014).

Coefficient of Determination (R^2 Value)

The R^2 value indicates the amount of variance of dependent variables which is explained by the independent variables. Hence, a larger R^2 value increases the predictive ability of the structural model. It is crucial to ensure that the R^2 values should be high enough for the model to achieve a minimum level of explanatory power (Urbach and Ahlemann 2010). Falk and Miller (1992) recommended that the R^2 values should be equal to or greater than 0.10 in order for the explained variance of a particular endogenous construct to be deemed adequate. Cohen (1988) suggested that R^2 is substantial when it is greater than 0.26. with acceptable power above 0.02. And according to Chin (1998) R^2 is substantial when it is greater than 0.65 with acceptable power above 0.19. Conversely, Hair Jr. et al. (2017) recommended that R^2 has to be larger than 0.75 in order to be deemed substantially, with acceptable power above 0.25.

In this study, the model showed a good fit to the data as proved by the squared multiple correlations (R^2) values for the dependent variable: Sukuk Market Development SMD ($R^2 = 0.711$). Hence, legal framework, *Shari'ah* governance, secondary market, credit rating and yield curve explained 71% of the variance in sukuk market development in Saudi Arabia.

Table 4 shows the result of R^2 from the structural model, and indicates that all the R^2 values are high enough for the model to achieve an acceptable level of explanatory power.

Goodness of Fit (GoF) of the Model

PLS Structural Equation Modelling has only a single measure goodness of fit (i.e., the

Table 4. Coefficient of determination result R^2

Exogenous construct	Endogenous construct	R^2	Hair Jr. et al. (2017)	Cohen (1988)	Chin (1998)
LF, SG, SM, CR, YC	SMD	0.711	Substantial	Substantial	Substantial

GoF index) which has been proposed by Tenenhaus et al. (2005). A global fit measure (GoF) for PLS path modelling can be defined as the geometric mean of the average communality and average R^2 for the endogenous constructs. The main purpose of the goodness of fit measure is to explain the variance extracted by both the measurement model and structure model (Chin 2010). The GoF can be calculated by the following formula

$$Gof = \sqrt{(R^2 \times AVE)} \tag{1}$$

In this study, the GoF value of the model was 0.707 which had been obtained as follows:

$$Gof = \sqrt{(0.711 \times 0.706)} = \sqrt{0.501} = 0.707 \tag{2}$$

To compare the GoF value of this study with the threshold values of GoF proposed by Wetzels et al. (2009) (0.1 represents small, 0.25 represents medium, 0.36 represents large), it can be concluded that the model's GoF was large suggesting an adequate of the global PLS model validity.

6 Hypotheses Testing

PLS-SEM is a nonparametric method and therefore, bootstrapping is used to determine statistical significance (Chin 1998). Hair Jr. et al. (2017) suggests using a bootstrap confidence interval for significance testing in case the bootstrap distribution of the indicator weights is skewed. The statistical critical (t) values for this test are: 1.65 for the 10% level of significance, 1.96 for the 5% level of significance, and 2.57 for the 1% level of significance (Hair Jr. et al. 2014).

6.1 Main-Hypotheses Testing

H1: There is a significant relationship between the challenges that facing Saudi sukuk market and sukuk development market

Table 5 indicates the t-value and p-value of challenges in predicting the sukuk development market were (30.979) and (0.000) respectively. It means that the probability t-value at 30.979 (more than 1.960). In other words, the path coefficient for challenges in prediction of sukuk development market is significantly different from zero at the level of

0.001. Therefore, the main hypothesis was supported. Moreover, the path coefficient was 0.802, indicating a positively relationship. It means when challenges that facing Saudi Sukuk Market goes up by 1 standard deviation, Sukuk Development Market goes up by 0.802 standard deviations (Fig. 5 and 6).

Table 5. Summary of structural model assessment (Main Hypothesis)

H	Exogenous Variables		Endogenous variables	Estimate (path coefficient)	Standard deviation	C.R (t-value)	P-value	Hypothesis result
H1	Challenges	→	Sukuk Market Development	0.802	0.026	30.979	0.000	Supported

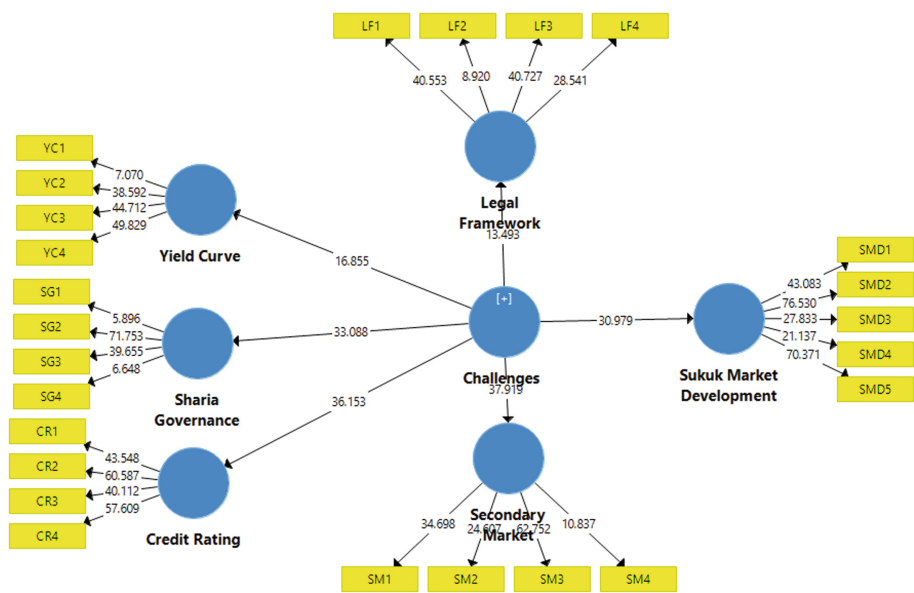


Fig. 5. Structural model for main hypothesis with (Bootstrapping)

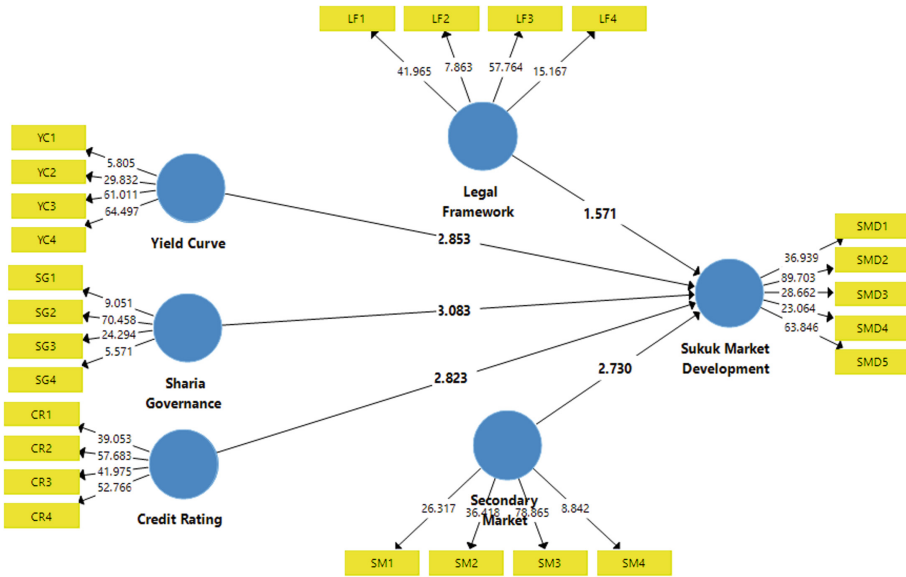


Fig. 6. Structural model for main hypothesis with (Bootstrapping)

6.2 Sub-hypotheses Testing

H1.1: There is a significant relationship between legal framework and sukuk market development

The results show in Table 6, the t-value and p-value of legal framework in predicting the sukuk market development are ($1.571 < 1.960$) and ($0.116 > 0.05$) respectively. It means that legal framework does not significantly influence on sukuk market development. Therefore, H1.1 is not supported.

H1.2: There is a significant relationship between *Shari'ah* Governance and Sukuk Market Development

Table 6 present that the t-value and p-value of *Shari'ah* governance in predicting the sukuk market development in Saudi Arabia are ($3.083 > 1.960$) and ($0.002 < 0.05$) respectively. It means that the probability t-value at 3.083 (more than 1.960). In other words, the path coefficient *Shari'ah* governance in prediction of sukuk market development is significantly different from zero at the level of 0.05. Therefore, the hypothesis H1.2 was supported. Moreover, the path coefficient was 0.327, indicating a positively relationship. It means when *Shari'ah* governance goes up by 1 standard deviation, sukuk market development goes by 0.327 standard deviations as shown in Table 6.

H1.3: There is a significant relationship between secondary market and sukuk market development

The study findings presents that the t-value (C.R) and a p-value of secondary market in predicting the sukuk market development were ($2.730 > 1.960$) and ($0.006 < 0.05$)

Table 6. Summary of structural model assessment (Sub- Hypotheses)

H	Exogenous variables		Endogenous variables	Estimate (path coefficient)	Standard deviation	C.R (t-value)	P-value	Hypothesis result
H1.1	Legal framework	→	Sukuk market development	-0.096	0.061	1.571	0.116	Not supported
H1.2	<i>Shari'ah</i> governance	→	Sukuk market development	0.327	0.106	3.083	0.002	Supported
H1.3	Secondary market	→	Sukuk market development	0.301	0.110	2.730	0.006	Supported
H1.4	Credit rating	→	sukuk market development	0.260	0.092	2.823	0.005	Supported
H1.5	Yield curve	→	Sukuk market development	0.158	0.055	2.853	0.004	Supported

respectively. It means that the probability of getting a t-value as large as 2.730 in absolute value is (<0.05). In other words, the regression weight for secondary market in prediction of Sukuk market development is significantly different from zero at the 0.05 level. Thus, H1.3 was supported. Furthermore, the path coefficient was 0.301, indicating a positive relationship. It means when secondary market goes up by 1 standard deviation, and Sukuk market development goes up by 0.301 standard deviations.

H1.4: There is a significant relationship between credit rating and sukuk market development

As shown in Table 6, the t-value (C.R) and a p-value of credit rating in predicting the Sukuk market development was ($2.823 > 1.960$) and ($0.005 < 0.05$) respectively. It means that the probability of getting a t-value as large as 2.823 in absolute value is (<0.05). In other words, the regression weight for credit rating in the prediction of Sukuk market development is significantly different from zero at the 0.05 level. Thus, H1.4 was supported. Furthermore, the path coefficient was 0.260, indicating a positive relationship. It means when credit rating goes up by 1 standard deviation, Sukuk market development goes up by 0.260 standard deviations.

H1.5: There is a significant relationship between Yield Curve and Sukuk Market Development

Table 6 presents that the t-value and p-value of yield curve in predicting the sukuk market development were ($2.853 > 1.960$) and ($0.004 < 0.05$) respectively. It means that the probability t-value at 2.853. In other words, the path coefficient yield curve in prediction of sukuk market development is significantly different from zero at the level of 0.05. Therefore, the hypothesis H1.5 was supported. Moreover, the path coefficient was 0.158, indicating a positively relationship. It means when yield curve goes up by 1 standard

deviation, sukuk market development goes by 0.158 standard deviations as shown in Table 6.

7 Research Findings

Findings associated with the legal framework regulating sukuk issuance in the Kingdom

The result of the first hypothesis test has showed that there is no a statistically significant impact between the legal framework regulating sukuk issuance in the Kingdom and the sukuk market development. Meaning that the opinion of respondents sample was contrary to what the previous studies have recommended through analyzing the legal framework regulating sukuk issuance in the Kingdom.

These previous studies have concluded that securities offering rules and continuing obligations regulating securities issuance in the kingdom do not issue any separated rules particularly for sukuk market in the Kingdom. Where these rules are applicable for all type of securities in the capital market including (Stocks, bonds and sukuk) either these securities are conventional or Islamic. That is due to the financial sector in the kingdom does not differentiate between the conventional and Islamic financial transactions in general. In addition, the kingdom does not allocate separate laws or regulations for sukuk issuance. And sukuk is generally combined with bonds in the financial reports under the name of “debt instruments” without any distinguish between sukuk and bonds. As well as, the sukuk is included with the other securities legislations. Which may lead to the importance of observing the foremost experiences of sukuk in other countries such as Malaysia and the United Arab Emirates.

However, the respondents sample in the questionnaire with their practical experience of sukuk issuance in the kingdom have undervalued the importance of this factor. They mentioned that there is a sufficient regulatory framework for sukuk issuance. And the absence of distinction between the rules regulating different type of securities “equity, bonds and sukuk” does not affect the development and growth of the sukuk issuances volume.

Findings associated with *Shari’ah* governance for sukuk issuance in the kingdom

The result of second hypothesis test has showed that there is a statistically significant impact between the *Shari’ah* governance for sukuk issuance and the sukuk market development in the kingdom. Meaning that the opinion of the participated sample is compatible with what the previous studies have recommended through analyzing the *Shari’ah* governance for sukuk issuance in the Kingdom.

These previous studies have concluded that there is no *Shari’ah* governance system for the financial services sector in the Kingdom in general and for the capital market including sukuk in particular. In addition, there are other studies refer to the existence of some *Shari’ah* non-compliant issues of the issued sukuk in the kingdom. That is due to their issuers are not committed to consolidated *Shari’ah* standards. Also, other studies have showed that the lack of *Shari’ah* supervision for sukuk in the kingdom has a negative effect on the stakeholder’s trust. Which may cause a negative impact on sukuk market value.

Findings associated with the secondary market of sukuk issuance in the Kingdom

The result of the third hypothesis test has showed that there is a statistically significant impact between the secondary market activation for trading the issued sukuk in the kingdom and sukuk market development in the kingdom. Meaning that the opinion of the participated sample is compatible with what the previous studies have recommended through analyzing the secondary market of sukuk in the Kingdom.

These previous studies have concluded that sukuk market is not active in both the sukuk are listed in local market “Tadawul” and what are listed in the international markets such as London Stock Exchange. By analyzing the reasons behind that non-activation, the studies have found two main reasons, (1) the majority of sukuk investors prefer to hold sukuk until the date of amortization “redemption”. (2) Unavailability of trading for retail investors in the Kingdom.

Findings associated with credit rating for sukuk issuance in the Kingdom

The result of the fourth hypothesis test has showed that there is a statistically significant impact between credit rating for the issued sukuk in the Kingdom and sukuk market development. Meaning that the opinion of the participated sample is compatible with what the previous studies have recommended through analyzing the credit rating for the issued sukuk in the Kingdom.

These previous studies have found that there is no credit rating for the local issued sukuk, where the credit rating only for the international issued sukuk. According to the data available until the end of 2018, there is no local credit-rated sukuk were issued either from international, regional or local rating agencies only with a few exceptions (5 issuances).

Findings associated with yield curve for sukuk issuance in the kingdom

The result of the fifth hypothesis test has showed that there is a statistically significant impact between the yield curve for the issued sukuk in the Kingdom and sukuk market development in the kingdom. Meaning that the participated sample’s opinion is compatible with what the previous studies have recommended through analyzing the pricing mechanism and the yield curve for the issued sukuk in the Kingdom.

These previous studies have found a possibility of building a yield curve for the sovereign sukuk issued locally in the Kingdom which resulted in building a normal yield curve. This means the returns on the long-term sukuk maturities are higher than the short-term sukuk maturities and vice versa. And there is a completion of the yield curve on the sovereign sukuk issued locally in the Kingdom for sukuk tenures from 2 to 15 years. However, there is a pricing gap for sukuk tenures from 15 to 30 years.

8 Conclusion

The main purpose of this research is to identify the level of impact of the five challenges on sukuk development in the Saudi Kingdom, these challenges are: the legal framework regulating sukuk issuance, *Shari’ah* governance for sukuk issuance, activation of secondary market for sukuk trading, credit rating for sukuk issuance and completed yield curve for sukuk issuance. The research has adopted quantitative method depending on

a primary data through distributing a questionnaire to sukuk experts in the Saudi Kingdom. For analysing the study variables relationships the research adopted SEM model by Smart PLS 3 software. The results of hypotheses testing have showed that, firstly, for the main-hypothesis testing there was statistically proved significant relationship between the challenges facing Saudi sukuk market and sukuk development market. Secondly, for the sub-hypotheses there was no statistically significant impact between the legal framework of sukuk issuance and the sukuk market development in the Saudi Kingdom. However, for the other four challenges the findings have showed a statistically significant impact of these four challenges on the sukuk market development in the Saudi Kingdom.

The research recommended that, the importance of establishing an integrated mandatory system of *Shari'ah* governance for sukuk issuance in the Kingdom. As well as, enabling sukuk trading for retail investors where the secondary market activation provides many advantages for sukuk industry. Besides, obliging the sukuk issuers to release the credit rating of the issued sukuk, especially in the current presence of the local credit rating agency (SIMAH Rating Agency "TASSNIEF"). Therefore, identifying the risk associated with issuance which may lead to fair and accurate pricing compatible to the levels of risks associated with the sukuk issuances. Also, the necessity of announcing the yield curve on sovereign sukuk in the Kingdom and consider it as a standard pricing index for non-governmental sukuk issuances.

Research Limitations and Future Research

For the research limitations, the context of the questionnaire is very technical and precise which necessarily requires a high level of sukuk market practitioners in the Saudi Kingdom. Therefore, the authors after distributing the questionnaire to such limited sample community size in the Saudi Kingdom for more than three months, they got only this respondents sample of 115 sukuk market practitioners. Hence, this research covered the view point of sukuk market practitioners. Thus, it is recommended for future studies to conduct indepth interviews with sukuk regulators in different competent authorities, particularly Capital Market Authority CMA in the Saudi Kingdom in order to obtain more comprehensive results.

Appendix 1. Items Loading, AVE, Cronbach's Alpha and Composite Reliability (CR)

Constructs	Items	Code	Factor loading	Cronbach's alpha	Composite reliability	AVE
Legal framework	The Saudi Kingdom provides an adequate regulatory framework to develop Islamic capital market and sukuk	LF1	0.903	0.836	0.890	0.672

(continued)

(continued)

Constructs	Items	Code	Factor loading	Cronbach's alpha	Composite reliability	AVE
	The current regulatory framework for sukuk issuance in Saudi is clear and comprehensive	LF2	0.724			
	In the Mental image, the Sukuk in the Kingdom is viewed as debt tool	LF3	0.909			
	International sukuk issuance in Saudi Kingdom is compatible with the rules of issuing and listing of the western securities, therefore that is easier to be globally acceptable	LF4	0.728			
<i>Shari'ah</i> governance	The difference of <i>Shari'ah</i> committees' opinions are considered an obstacle for growing sukuk issuance in Saudi Kingdom	SG1	0.625	0.762	0.852	0.595
	For attaining a good marketing for Saudi international sukuk issuance, it is preferred to take the <i>Shari'ah</i> opinion from the distinguished <i>Shari'ah</i> scholars globally	SG2	0.907			
	Sukuk that issuance in Saudi Arabia is globally acceptable from shari'ah perspective	SG3	0.840			
	There is system of Shari'a audit on Sukuk issued in the Kingdom	SG4	0.679			

(continued)

(continued)

Constructs	Items	Code	Factor loading	Cronbach's alpha	Composite reliability	AVE
Secondary market	The secondary sukuk market in Saudi Kingdom consider an active market compared to secondary sukuk markets in other countries	SM1	0.809	0.843	0.895	0.684
	Sukuk prices that are traded in the Saudi secondary market do not match with the underlying asset returns	SM2	0.862			
	Sukuk investors focus on the activation level of the secondary sukuk market	SM3	0.931			
	Pricing of the traded sukuk in the secondary market has the same pricing mechanism of the regular listed bonds	SM4	0.685			
Credit rating	There is a relationship between credit rating of international sukuk issuance in Saudi Kingdom and credit rating for Saudi economy	CR1	0.854	0.907	0.935	0.783
	Lack of credit rating for some international sukuk issuance in Saudi Kingdom influences on its level of acceptance internationally	CR2	0.917			
	The subscribers in local sovereign sukuk pay attention for sukuk credit rating	CR3	0.898			

(continued)

(continued)

Constructs	Items	Code	Factor loading	Cronbach's alpha	Composite reliability	AVE
	In Saudi market, the importance of credit rating is more for international sukuk compared to local Sukuk	CR4	0.869			
Yield curve	There is a significant correlation between the pricing of international Sukuk issuance and LIBOR prices, as well as between local Sukuk issuance and SAIBOR pricing	YC1	0.620	0.875	0.916	0.735
	Saudi sovereign Sukuk has a completed yield curve	YC2	0.901			
	Diversity of the issuance tenures is a condition for making a completed yield curve for sukuk	YC3	0.929			
	corporate sukuk Pricing in Saudi Kingdom currently links with the sovereign Sukuk yield curve	YC4	0.939			
Sukuk market development	It is necessary for the Capital Market Authority of Saudi Arabia to restructure the regulatory framework for sukuk issuance as a condition for the development of the Saudi sukuk market	SMD1	0.865	0.925	0.944	0.771
	One of conditions for the development of the Saudi sukuk market is the existence of Shari'ah framework to Sukuk issuance	SMD2	0.924			

(continued)

(continued)

Constructs	Items	Code	Factor loading	Cronbach's alpha	Composite reliability	AVE
	The activation level of secondary sukuk market is a condition for developing the Saudi sukuk market	SMD3	0.849			
	The activation level of secondary sukuk market is a condition for developing the Saudi sukuk market	SMD4	0.823			
	A completed yield curve for pricing new issues is a condition for Saudi sukuk market development	SMD5	0.925			

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