

# **Impact of Risk Factors in Return on Sukuk (Islamic Bond) Market: Special reference from Nasdaq Dubai Sukuk Indices**

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## **Abstract**

The objective of this study is to identify the different types of risk embedded in the sukuk structure and impact of them in return on Sukuk market. To identify the factors literature was reviewed and to find the impact of them secondary data were collected from Nasdaq Dubai sukuk indices of the global sukuk market from 2005 to 2014 on a periodic monthly basis. Collected data were analyzed and found various factors namely interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk. Regression analysis revealed that risk factors explain 88% to 94% of the variation on sukuk return and global sukuk return is exposed to risk. Specifically, while dollar rate risk negatively related interest rate risk, inflation rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk positively related with sukuk return. Further, the results confirmed the significant influence of market risk, credit risk, operational risk and liquidity risk on the sukuk returns in different ways. Maintaining optimum level of inflation, hedging interest- rate risk with the Thompson Reuters interest rate with Islamic industry, using a common currency in the Gulf region, mitigate risk management mechanism, establishing an international common Shari'ah board and taking steps in order to develop secondary markets for sukuk are recommended.

**Keywords:** market, performance, return, risk, sukuk.

## **Introduction**

In the past five years, in particular, the Islamic finance industry has gained momentum and researchers have seen increased interest in the market along with a diversification of Shari'ah products and services that have been a catalyst for investment. As this change takes place, the underlying investment vehicles will continue to benefit from investor confidence as investment volumes bring additional liquidity and opportunities for creating an ever more innovative and dynamic investor market. Moreover, according to Percy (2015), recent economic and political shocks in previously stable markets have changed the dynamic for retail investors, indicating that good ethics can result in smart investing. Indeed, a shift in Western investor sentiment towards Islamic finance is only one small indicator of the future prospects of Shari'ah compliant funds for investors.

In addition, there are further strengthening ideas on the importance of sukuk market that have been stated by Rafique (2008) and Dawson (2013). Rafique (2008) stated that overall economies across Muslim countries have been experiencing a high boom leading

to demand for infrastructure to boost productivity and improve living standards. Many of these infrastructure projects require a large amount of investment on a long term basis. It is expected that the major part of this capital would be raised through the Islamic capital market and sukuk instruments. The development of sukuk market, as an alternative to the conventional debt market, is expressed to be the main force for securing funds to finance infrastructure in the Muslim world and outside. Sukuk hence play vital role in GCC countries.

Sukuk market also presently faces many challenges. One of such challenge is its associated risks (Haral, 2010). Sukuk is subject to a wide array of risks inherent in their structure (Firoozye, 2012). One may argue that sukuk as structured today, are riskier as they just reflect the sector risks. Moreover, Alawsat (2008) points out that sukuk risks vary according to the structure of the sukuk and these risks also vary depending on the underlying assets of these sukuk. Baeshen (2009) argued that structuring sukuk is a fairly new science and that there are limited judicial and legal precedents to guide us as to how they are treated, and that most of the assets backing sukuk issues in the GCC region. Particularly, they are generally real estate based. There are many risks which are associated with sukuk. Tariq (2004) stated that some of the sukuk issuances are exposed to interest rate risks since the rates are benchmarked against LIBOR rates. The rising market rates lead to fall in the fixed income from sukuk. This also leads to investment risks, especially, if the asset is not liquid as the zero non tradable sukuk. This study concluded that there was a positive correlation between the return of the investment and risk. Further, Tariq (2004) mentioned that, in the sukuk market, the responsibility of maintaining the asset structure is transferred to the lessee based or service agency agreement. This results in asset risk for sukuk. Quqa (2008) identified that where the assets in the sukuk pool are denominated in one currency and the sukuk are accumulated in another currency, the sukuk investment is exposed to currency risks.

The key step towards better risk management is the identification of the risks involved, since it is impossible to think about hedging or managing those risks if they are not known. Alsayed (2009) also stress that in order to increase sukuk returns, similar risk management method cannot be applied for all types of risks embedded in sukuk. Therefore, an appropriate method of risk management must be identified to various risk based on the seriousness of its impact on sukuk returns. Therefore, the magnitude of the relationship between each type of risks and return and the significant impact of each risk of the return of sukuk is essential.

Haral (2010) emphasized that identification of risks associated with the sukuk is the first and most important for the future development of the market concern and for managing it in a better way. While the conventional bonds are reported to be associated with many risks such as interest rate risk, reinvestment risks, call risks, default risk, and inflation risks. The novelty of sukuk inherently entails a higher exposure to a certain market and financial risks because sukuk structure is based on the Shari'ah compliance. Therefore, all the risk associated with conventional bonds are not analogous to the sukuk structure. Therefore, some special risks are also associated with sukuk return. Therefore, it is very much needed to identify the risks associated with sukuk and the significant impact of different types of risk associated with the return.

Fathi, Zarei and Esfahani (2012) studied about studying the role of financial risk management on return on equity. Results showed that interest rate risk and diversification risk have significant correlation with ROE, but there is no significant correlation between credit risk and ROE. Avramov et al. (2011) studied about credit ratings and the cross-

section of stock returns. Shetty and Manley (1998) studied about analysis of the currency impact on international investment. This study examined the currency impact on risk-return outcomes, market correlations, and the relationship between volatility and correlation from the perspective of non-dollar based investments. This study investigates the empirical relation between inflation and stock return in ten industrialized countries.

This study contributes in a number of ways. Mainly, numbers of opportunities are accessible in sukuk market. That is to say, after the recent global financial crisis in 2008-2009, conventional banking and financial system was mostly blamed due to its unsustainable nature of the system. Therefore, the need for a strong and well regulated sukuk market has been emphasized. Leaders in the financial sector, both in the government and the corporate sector have realized the emerging needs and the opportunities for the sukuk market. Therefore, findings of this study will fill this gap and provide alternative opportunities and possibilities of this unique investment which may lead to a sustainable one. Next, the findings from this study will help to manage risk in the sukuk market and hence promote the growth of the sukuk market. As reported in the Islamic Finance Gateway, Thomson Reuters (2013) pointed out that large portions of sukuk in the recent low rate environment will necessarily decline in value, if rates increase in the market. The cost of swapping to variable rate utilizing profit rate swaps is still a new and relatively expensive practice for Islamic financial institutions.

Based on the above review findings the different types of risk associated with sukuk and their impact is felt necessary. As such, the researcher sets two objectives as (a) to identify the different types of risks embedded in sukuk structure and (b) to analyse the impact of different types of risks on return of sukuk.

## Methodology

In order to achieve the first objective the researcher reviewed the literature. As a result, four important groups of risk are identified. They are market risk, operational risk, credit risk and liquidity risk. Different risk dimensions of each group of risk also synthesized based on the literature. As such, market risk includes interest rate risk, inflation rate risk and the dollar rate risk. Operational risk includes consumer confidence risk and legal and Shari'ah compliance risk. Credit risk includes credit risk and maturity risk. Liquidity risk includes liquidity and reinvestment risk. These risks are most used in bond markets, which are suitable to sukuk market too. Hence, this study too considered all these four groups of risks. In this study change in sukuk return is the dependent variables which are hypothesized to be influenced by four groups of risk factors. This relationship is expected from the literature review process.

Various models have been constructed and used to explain variability of excess returns on sukuk with different structures. A model is employed to determine the excess return variability of the sukuk return index. The explanatory variables are libor 6-month certificate of deposit rate, consumer price index, U.S. dollar trade weighted index, consumer confidence rate index, higher quality rate index, maturity period rate index, size risk factor (SMB) and reinvestment index. The researcher developed the following model for this study.

$$R_s - r_f = \alpha + \gamma_1 \Delta IRDt + \gamma_2 \Delta CPI_t + \gamma_3 \Delta DOR_t + \gamma_4 \Delta CCI_t + \gamma_5 \Delta MPRT + \gamma_7 \Delta SMB_t + \gamma_6 \Delta HQR_t + \gamma_8 \Delta RIR_t + \epsilon_t \dots \dots \dots (3)$$

Many researchers have studied about different index for studying bond market. For instance, IRDt is used to measure interest rate risk, CPIt is used to measure inflation rate risk, DORt is used to measure dollar rate risk, CCI<sub>t</sub> is used to measure consumer confident risk, MPRT is used to measure maturity risk, SMB<sub>t</sub> is used to measure credit risk, HQRT is used to measure Shari'ah compliance risk, and RIRt is the reinvestment risk used to measure liquidity risk. Although these data are available countrywide, the present study is based on the global sukuk market. Since Bahrain, Malaysia, UK and UAE had the most successful operation in the sukuk market worldwide, data are obtained from these countries. These were based on their country basis, therefore, these data are converted for fitting to the present research. For this purpose, firstly, the data were converted into average and variance. Second, logs are found for converting data. Third, ordinary least squares (OLS) analysis is applied for analyzing data.

This research focuses on different risks and returns in the sukuk structure in Islamic financial market. Globally, 2925 sukuk have been issued up to 2014. This is considered as the population of this study. However, out of that 243 are traded and listed sukuk which is 30% of the total value of the sukuk in the global market are covered in this research. The researcher has analyzed the data from the developed sukuk market indices such as HSBC/Nasdaq Dubai sukuk indices. This research covers nine year sample period beginning from January 2005 to December 2014.

## Data Presentation and Analysis

This research analyses about regression that covers model summary, ANOVA, and coefficient. Descriptive, correlations and regression analysis are done to test the impact of risk on sukuk return on the basis of global sukuk structure.

The table 1 presents results of the descriptive analyses of the dependent variable and independent variables. These independent variables are the risk factors in the sukuk market and they are categorized into four, namely market risks, operational risks, credit risks and liquidity risks as suggested by the literature. Market risk consists of interest rate risk, inflation rate risk and dollar rate risk. Consumer confident rate risk and Shari'ah compliance risk are sub components of operational risks. Credit risks cover maturity risk and credit risk. A liquidity risk includes reinvestment rate risk.

**Table 1.** Descriptive Analysis of Variables

Nasdaq Dubai Sukuk Return	Dependent variable	Mean	Standard Deviation	Minimum	Maximum
Global	$\Delta$ SKBIRf	0.1248	0.0216	-0.0714	0.1622
Risk Factor	Independent	Mean	Std.	Minimum	Maximum
Market Risk	$\Delta$ IRD	0.0431	0.0111	-0.0118	0.0564
	$\Delta$ CPI	0.1089	0.0059	-0.0989	0.1200
	$\Delta$ DOR	0.0819	0.0046	-0.0721	0.0927
Operational	$\Delta$ CCI	0.0985	0.0096	-0.0749	0.1140
	$\Delta$ HQR	0.1096	0.0078	-0.0800	0.1214
Credit Risk	$\Delta$ MPR	0.0965	0.0128	-0.0500	0.1170
	$\Delta$ SMB	0.1198	0.0142	-0.0989	0.1444
liquidity Risk	$\Delta$ RIR	0.1077	0.0117	-0.0705	0.1241

Source: Analysis output

As for the Nasdaq Dubai indices, as presented in table the mean values for  $\Delta$ SKBIRf, are 0.1248, with the range of standard deviation between 0.0142 and 0.0216. They have the range of minimum and maximum between -0.0714 and 0.1622. This also refers to that there is a higher variation among these variables. Table presents mean values for  $\Delta$ IRD,  $\Delta$ CPI,  $\Delta$ DOR,  $\Delta$ CCI,  $\Delta$ HQR,  $\Delta$ MPR,  $\Delta$ SMB, and  $\Delta$ RIR are 0.0431, 0.1089, 0.0819, 0.0985, 0.1096, 0.0965, 0.1198 and 0.1077 respectively. This refers to that average sukuk return for these variables vary between 0.0431 and 0.1198. They have the standard deviation between 0.0046 and 0.0142.

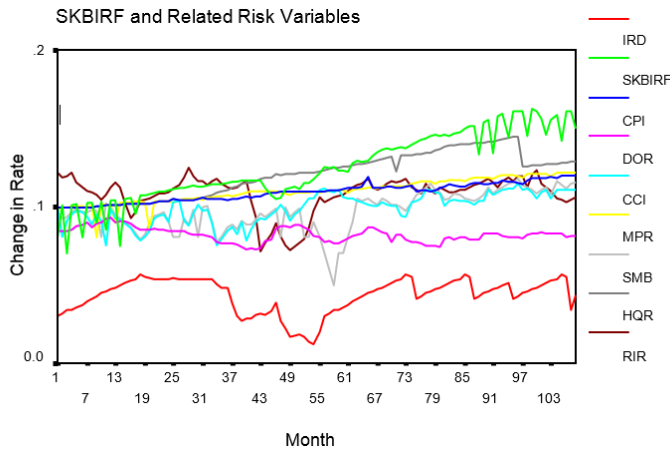


Figure: Fluctuation between Nasdaq Dubai Global Sukuk Return (SKBIRF) and Its Related Risks  
Source: Analysis output

The figure presents the fluctuation between Nasdaq Dubai global sukuk return (SKBIRF) and its related risk factors. Following line charts show the variation and fluctuation in the dependent variables with the change in each of the independent variables - interest rate risk, inflation risk, dollar rate risk, consumer confidence rate, maturity risk, credit risk, Shari'ah compliance risk, and liquidity risk.

Table 2 presents the correlation between Nasdaq Dubai sukuk returns and risk variables. This category covers HSBC/ Nasdaq Dubai US Dollar sukuk index SKBI (global), SKBI (global) has the correlation values of between -0.436 and 0.891.

**Table 2.** Correlation between Nasdaq Dubai Sukuk Returns and Risk Variables

	$\Delta$ SKBIRF	$\Delta$ IRD	$\Delta$ CPI	$\Delta$ DOR	$\Delta$ CCI	$\Delta$ MPR	$\Delta$ SMB	$\Delta$ HQR	$\Delta$ RIR
$\Delta$ SKBIRF	1								
$\Delta$ IRD	.261**	1							
$\Delta$ CPI	.891**	.084	1						
$\Delta$ DOR	-.436**	.064	-.335**	1					
$\Delta$ CCI	.686**	-.014	.734**	-.191*	1				
$\Delta$ MPR	.877**	.104	.901**	.451**	.658**	1			
$\Delta$ SMB	.591**	.307**	.526**	.003	.406**	.540**	1		
$\Delta$ HQR	.859**	.021	.873**	.465**	.698**	.854**	.509**	1	
$\Delta$ RIR	.239*	.555**	.047	-.138	.118	.090	.240*	.060	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Data were screened to test the auto correlation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) is 2.170 imply that data explain no auto correlation. The value of TOL varies between 0.123 and 0.600 and values of VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.796 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

The results from the value of R, R square, and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 88% to 94% of the variation on sukuk return. Unexplained variation ranges between 6% and 12%. ANOVA results reveal that value of F statistics is 102.527 which indicate that the model is significant at the 5% level and the variables taken in this study explain the model. Alternative hypothesis are set as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and SKBI (global) sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. Table 3 shows the OLS regression results.

**Table 3.** OLS Regression Results for SKBI (Global) Sukuk Returns and Its Related Independents

Model	Coefficients			Sig.	Multicollinearity	
	B	Std. Error	t		TOL	VIF
Constant	-.133	.028	-4.811	.000		
ΔIRD	.294	.083	3.542	.001	.597	1.675
ΔCPI	1.505	.339	4.437	.000	.123	8.139
ΔDOR	-.568	.209	-2.723	.008	.558	1.791
ΔCCI	.157	.117	1.338	.184	.402	2.485
ΔMPR	.436	.239	1.822	.071	.146	6.832
ΔSMB	.160	.076	2.118	.037	.540	1.851
ΔHQR	.305	.120	2.548	.012	.176	5.690
ΔRIR	.113	.079	1.443	.152	.600	1.668
R	.945					
R Square	.892					
Adjusted R Square	.884					
F	102.527			.000		

Number of Observation=120; Durbin-Watson (d) =2.170

Source: Analysis output

This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and SKBI (global) sukuk return. For SKBI (global) sukuk returns, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have a positive relationship with return. Of these positive relationships, CPI occupies the highest positives with the return. RIR has the least positives with the return. However, the impact of IRD and CPI are significant at the 1% level, while, DOR, SMB and HQR are significant at the 5% level and MPR is significant at the 10% level. According to the regression results with interest rate risk, inflation rate risk, dollar rate risk, maturity risk,

credit risk and Shari'ah compliance risk impact SKBI (global) sukuk return significantly. The coefficients of variables vary among them. In the last decade, sukuk prices were mostly driven by global and regional events affecting the whole capital market. Plunge in sukuk prices is in line with the drop in prices of all other assets affected by the global financial crisis. Due to this interest rate risk, credit risk and inflation risk influence the total return. Investors eventually found reputable names with good return. Prices recovered with the Abu Dhabi government bail out that slowly returned investors' confidence in Dubai (Thompson Reuters, 2013).

## Conclusion and Recommendations

Regression analyses of Nasdaq Dubai sectorial based sukuk return found the models explaining variation of risk impact on sukuk return. As such global sukuk return is 88% exposed to risk. For SKBI (Global) sukuk returns, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have a positive relationship with return. Of these positive relationships, CPI occupies the highest positives with the return. RIR has the least positives with the return. Anyway, IRD, CPI, DOR, MPR, SMB and HQR are significant. Therefore, these results can be justified as explanatory power focuses more on interest rate risk, inflation risk, dollar rate risk, credit risk and maturity risk. Empirical findings prove these findings. Therefore, findings of the present study support with the previous findings of studies.

This research focuses number of recommendations on the bases of research findings. Numbers of risk factors have been identified to have significant impact on sukuk return in all types of sukuk structures. Inflation rate risk and interest rate risk have been identified as the one important cause for this result. It can be recommended that inflation rate risk should be controlled at an optimal level for the benefit of macroeconomic stability. Government regulators and policy makers should pay attention on these issues periodically.

It is recommended that interest rate introduced by Thomson Reuters is far better than the libor rate as this interest rate has been formulated especially for Islamic finance industry. This is one of the significant improvements to avoid the interest rate risk in sukuk markets. This study has several important implications for the management and policy making level. Since sukuk markets are becoming famous globally, developed countries try to adopt Islamic sukuk for the prevailing financial crisis. Developing countries like Sri Lanka is also keenly interested in being involved in sukuk market.

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