DOES SECTORIAL CAUSE THE LEVEL OF IMPACT OF RISK ON SUKUK RETURN? EMPIRICAL EVIDENCE FROM NASDAQ DUBAI SUKUK INDEX

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Abstract

This study attempted to determine the impact of risks on returns of sukuk in different sectorial structures. The different types of risks (market risk, credit risk, operational risk and liquidity risk) are independant variables and the return of sukuk is dependant variable. Data were collected from Nasdaq Dubai HSBC sukuk index of sukuk market period from 2005 to 2015 on a monthly basis and analyzed using descriptive, correlation analysis and multi-regressions analysis.

The four regression models explain 70% to 89 % of the variation.While risk exposure on global sukuk return is 88%, risk exposure on sovereign sukuk return is 70%. While risk exposure to corporate sukuk return is 89% risk exposure to financial sukuk return is 73%. The results indicate that a sovereign sukuk return is very less exposed to risk compared with other sectors corporate sukuk and financial sukuk. Therefore, it is possible to conclude that sovereign sukuk return is minimally exposed to risk. It is also found that when compared with finance sector risk is high in the corporate sector.

This study recommend to maintain inflation rate at an optimal level and promote secondary markets for sukuk.

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

Introduction

The role of Islamic banks is much below expectation for the fact that they are relatively weaker to support underwriting activities for large issuances in addition to their lack of investment banking experiences. This was based on the factual figures of dollar base and issuance base sukuk market as reported by Thomson Reuter (2013). It could be argued that the sukuk market has grown time to time globally. This was the greatest evidence that sukuk market is developing and becoming popular globally.

The aftermath of the global financial crisis is still being felt seven years on from the start of the initial collapse. Expanding national debt levels and the bail out of major investment institutions in previously core investment markets sent shock waves through traditional investors. Identification of risks is made by using experience and expertise in the Islamic capital market. There are some problem areas or risks which are very important to manage.

This study might give awareness to promote

sukuk issue among GCC and Malaysia. It is felt there is a need for universally applicable Shari'ah interpretation on sukuk issuance. It becomes clear now that the sukuk default in future restructuring will change the way sukuk are structured and marketed. A number of studies emphasized the market structure of sukuk. For instance, Al-Amine (2012) stated that with regard to default or mortgage. Sometimes, the assets are scattered in multiple jurisdictions.

Further, Al-Amine (2012) expresses that, another common issue related to the sukuk default is about documentation. When sukuk were first formulated seven years ago, they included provisions about what would happen in the event of default. When sukuk are documented as unsecured, they would be treated just as conventional bonds. Thus, the same legal solution can be sought as in the case of conventional bond issues. Without clear provisions, it is very much possible that multiple creditors claim on a company asset after a default.

On the other hand, the sale of many sukuk has been more secure than conventional bonds as they were asset based. In case of sukuk defaults, it would be exposed as to how the court interprets the legal documentation of the sukuk. The underlying issue here is whether the mortgage assets have been truly transferred to investors or not. The issue can be made more complicated with different Shari'ah scholars and lawyers interpreting the issues in different ways. Experts in the finance sector maintained that most sukuk are structured as an asset based instrument, rather than assets backed securitization.

However, the scope of the study is limited many risks, whereas few risks are not incorporated in this present study. They are asset risks, legal risk, structure risk, regulatory risk country risks, counterpart risks, taxation risks, sector risks, default risk, equity price risk, and commodity risk. This study considered the mostly and widely used risks that have high impact in the sukuk market. Therefore, these variables have not been accounted to the model.

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. Alsayyed (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. But 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 of sukuk from different sector.

Methodology

The risks are identified from the literature presented in supportive empirical evidence. 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.

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 as IRD_t, consumer price index as CPI, U.S. dollar trade weighted index as DOR, consumer confidence rate index as CCI, higher quality rate index as HQR, maturity period rate index as MPR, size risk factor as SMB and reinvestment index as the reinvestment risk.

Return of sukuk data were collected from the secondary sources such as Nasdaq Dubai sukuk index and other independent risk factors are obtained from each country which are dominated by sukuk market period from January 2005 to December 2015 on Monthly basis. 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.

Data Presentation, Analyses and Discussion of Findings

This study first presents descriptive analyses which have been conducted using descriptive statistics mean and standard deviation for dependent variables into main data stream of Nasdaq Dubai sukuk index incorporates a global sectorial based index. Descriptive analysis of independent variables are also presented in this section.

As for the Nasdaq Dubai indices, as presented in Table 1, the mean values for ΔSKBIRf, ΔSUSIRf, ΔSUCIRf and ΔSUFIRf are 0.1248, 0.1139, 0.1251 and 0.1124 respectively, with the range of standard deviation between 0.0142 and 0.0216. Based on the above descriptive analysis, it is possible to conclude that over the period from 2005 to 2015, the average returns of sukuk have shown a considerable degree of variation.

The succeeding data that involve NASDAQ Dubai sukuk index are analyzed using correlation values. Table 2 presents the correlation between Nasdaq Dubai sukuk returns and risk variables. SKBI (global) has the correlation values of between -0.436 and

Table 1 Descriptive Analysis for Nasdaq Dubai Sukuk Return as Dependent Variable

Nasdaq DubaiSukuk Return	Dependent variable	Mean	Standard Deviation	Minimum	Maximum
Global Sectorial **Risk Factor** Market Risk Operational Risk Credit Risk liquidity Risk	ΔSKBIRf	0.1248	0.0216	-0.0714	0.1622
	ΔSUSIRf	0.1139	0.0193	-0.0805	0.1456
	ΔSUCIRf	0.1251	0.0211	-0.0750	0.1622
	ΔSUFIRf	0.1124	0.0142	-0.0857	0.1375
	Independent variable	Mean	Std. Deviation	Minimum	Maximum
	ΔIRD	0.0431	0.0111	-0.0118	0.0564
	ΔCPI	0.1089	0.0059	-0.0989	0.1200
	ΔDOR	0.0819	0.0046	-0.0721	0.0927
	ΔCCI	0.0985	0.0096	-0.0749	0.1140
	ΔHQR	0.1096	0.0078	-0.0800	0.1214
	ΔMPR	0.0965	0.0128	-0.0500	0.1170
	ΔSMB	0.1198	0.0142	-0.0989	0.1444
	ΔRIR	0.1077	0.0117	-0.0705	0.1241

Number of obervations=132
Source: Analysis output

0.891. SUSI (sovereign) has the correlation values of between -0.281 and 0.738. The correlation value of SUCI (corporate) varies between -0.440 to 0.0891. Correlation values of total returns of SUFI (financial) and its independentvariables vary between -0.312 and 0.811. According to Table 2, correlation values proved the strengths of the association between Nasdaq Dubai sukuk returns and their risk variables. Therefore, regressions are conducted with F and t statistics for testing the relationships between variables. Then, mechanisms for reaching research objectives are also outlined along with regression analyses.

Regression Analyses

This study categorizes the sukuk market as a Nasdaq sukuk index whice is incorporates global sectorial basis. These results are collectively presented in the OLS regression results. Data were screened to test the auto correlation,

Table 2: Correlation between Nasdaq Dubai Sukuk Returns and Risk Variables

	ΔSKBIRF	ΔSUSIRF	ΔSUCIRF	ΔSUFIRF	ΔIRD	ΔCPI	ΔDOR	ΔCCI	ΔMPR	ΔSMB	ΔHQR	ΔRIR
ΔSKBIRF	1											
ΔSUSIRF	.800**	1										
ΔSUCIRF	.995**	.811**	1									
ΔSUFIRF	.836**	.812**	.841**	1								
ΔIRD	.261**	.384**	.253**	.215*	1							
ΔCPI	.891**	.738**	.891**	.811**	.084	1						
ΔDOR	-.436**	-.281**	-.440**	-.312**	.064	-.335**	1					
ΔCCI	.686**	.617**	.701**	.660**	-.014	.734**	-.191*	1				
ΔMPR	.877**	.725**	.879**	.810**	.104	.901**	-.451**	.658**	1			
ΔSMB	.591**	.587**	.603**	.609**	.307**	.526**	.003	.406**	540**	1		
ΔHQR	.859**	.680**	.861**	.750**	.021	.873**	-.465**	.698**	.854**	.509**	1	
ΔRIR	.239*	.382**	.259**	.228*	.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).
Sourse: Ananlysis output

multicollinearity and heteroscedasticity. 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 at all the sectors.

Returns of SKBI (Global) Sukuk

The value of Durbin-Watson (d) is 2.170 imply that data explain no auto correlation. 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 indicates that the model is significant at the 5% level and the variables taken in this study explain the model. Table 3 shows the OLS regression results.

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

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

Model	Coefficients		t	Sig.	Multicollinearity	
	B	Std. Error			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=132; Durbin-Watson (d) = 2.170
Source: Analysis output

positiveness with the return. RIR has the least positiveness 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, until the Nakeel default pushed prices down again. Prices recovered with the Abu Dhabi government bail out that slowly returned investors' confidence in Dubai (Thompson Reuters, 2013).

Returns of SUSI (Sovereign) Sukuk

Data were screened for autocorrelation using Durbin-Watson (d) value which was found to be 2.139. This indicates data explain no autocorrelation. Since residual analysis white heteroscedasticity test results have a p value of 0.089 and it is more than 0.05 it is possible to say that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data. Table 4 shows the coefficient values for the variables.

Table 4: OLS Regression Results for SUSI (Sovereign) Sukuk Returns and Its Related Independents

Regression 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 70% to 85% of the variation in sukuk return. Unexplained variation ranges between 15% and 30%. The value of F statistics is in ANOVA is 32.438. This indicates that the

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.139	.039	-3.518	.001		
ΔIRD	.349	.119	2.935	.004	.597	1.675
ΔCPI	1.093	.485	2.255	.026	.123	8.139
ΔDOR	-.154	.298	-.518	.606	.558	1.791
ΔCCI	.314	.167	1.879	.063	.402	2.485
ΔMPR	.372	.342	1.087	.280	.146	6.832
ΔSMB	.204	.108	1.879	.063	.540	1.851
ΔHQR	.062	.171	.363	.717	.176	5.690
ΔRIR	.301	.112	2.684	.009	.600	1.668
R	.851					
R Square	.724					
Adjusted R Square	.702					
F	32.438			.000		

Number of Observation=132, Durbin-Watson (d)=2.139
Source: Analysis output

model is significant at 5% and the variables taken in this study explain the model.

According to the results, the impact of IRD, CPI, and RIR are significant at the 5% level and CCI and SMB are significant at the 10% level. Results show that interest rate risk, inflation rate risk, consumer confident risk, credit risk and liquidity risk impact SUSI (sovereign) sukuk return significantly. The beta values vary among the variables. Most investors prefer the sovereign sukuk to avoid the credit risk. Sovereign became famous post Arab Spring. In a previous study carried by Thompson Reuters (2013), nearly 60 % of the investors prefer to invest in sovereign sukuk because investors prefer lower risk investment. The number of corporate sukuk issuances is higher than sovereign and quasi sovereign issuances. But, the value of corporate issuance is much lower than sovereign issuances. From the total global aggregate sukuk issues, 56% of issuances are sovereign remaining are quasi and corporate sovereigns. Government institutions have two third of market share despite 77% of market share during the last decade (Thompson Reuters, 2013).

Returns of SUCI (Corporate) Sukuk

Data were screened for autocorrelation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) is 2.140. Thus, data explain no autocorrelation. Results of residual analysis white heteroscedasticity test have shown a p value of 0.896 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.

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 89% to 94% of the variation in sukuk return. Unexplained variation ranges between 06% and 11%. ANOVA results show that the value of F statistics is 112.782 which indicates that the model is significant at the 5% level and the variables taken in this study explain the model. Table 5 shows the coefficient values for developing the model.

Table 5: OLS Regression Results for SUCI (Corporate) Sukuk Returns and Its Related Independents

Similar results are found in SUCI (corporate) sukuk returns as at SKBI (global). Anyway, the impact of CPI is significant at the 1% level, while, IRD, DOR, SMB, HQR and RIR are significant at the 5% level and CCI and MPR are significant at the 10% level. According to the results interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk impact SUCI (corporate) sukuk return significantly. Coefficient value varies due to the following reasons that most of corporate sectors in the financial sectors were down due to the financial crisis. For instance, corporate sectors cannot afford the expectation of the investors. Further, 29% of the sukuk are corporate sukuk issuances when compared with government sovereign sukuk. There is a risk in adopting Shari'ah compliance. So, the investors have a lack of confidence on Shari'ah

Model	Coefficients				Multicollinearity	
	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.127	.026	-4.920	.000		
ΔIRD	.233	.078	3.005	.003	.597	1.675
ΔCPI	1.417	.317	4.471	.000	.123	8.139
ΔDOR	-.585	.195	-3.001	.003	.558	1.791
ΔCCI	.204	.109	1.869	.065	.402	2.485
ΔMPR	.426	.224	1.906	.060	.146	6.832
ΔSMB	.190	.071	2.686	.008	.540	1.851
ΔHQR	.272	.112	2.436	.017	.176	5.690
ΔRIR	.163	.073	2.219	.029	.600	1.668
R	.949					
R Square	.901					
Adjusted R Square	.893					
F	112.782			.000		

Number of Observation=132; Durbin-Watson (d)=2.140
Source: Analysis output

compliance (Thompson Reuters, 2013).

Returns of SUFI (Financial) Sukuk

Data were screened for autocorrelation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) is 2.131. Thus, data explain no auto correlation. Results of residual analysis white heteroscedasticity test have shown a p value of 0.823 which is more than 0.05. This proves that the variance of the residual is constant. That denotes 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 73% to 86% of the variation on sukuk return. Unexplained variation ranges between 14% and 27%. The value of F statistics in ANOVA is 37.098 which indicates that the model is significant at 5% and the variables taken in this study explain the model is accepted. Table 6 presents OLS regression results for SUFI (financial) sukuk returns and its related independents.

Table 6: OLS Regression Results for SUFI (Financial) Sukuk Returns and Its Related Independents

Despite this result, the impact of CPI, MPR and SMB are significant at the 5% level, the remaining risks are not significant. The results of the regression reveal that inflation rate risk, maturity risk and credit risk impact SUFI (financial) sukuk return significantly. Once observing the beta values as indicated in coefficient table, values vary in varying ranges. Thompson Reuters, 2013 report that 12.5% of the sukuk market represents the financial sector. Nearly 300 issues account for the financial service sector. Most of the leading financial institutions and other banks such as Bank Negara Malaysia, CIMB, HSBC, Maybank, etc., issued and during the last decade, this was in boom. After the financial crisis, the financial sector has been affected a lot.

Model	Coefficients B	Std. Error	t	Sig.	Multicollinearity TOL	VIF
Constant	-.078	.028	-2.818	.006		
ΔIRD	.067	.083	.800	.425	.597	1.675
ΔCPI	.765	.340	2.252	.027	.123	8.139
ΔDOR	-.098	.209	-.467	.642	.558	1.791
ΔCCI	.193	.117	1.650	.102	.402	2.485
ΔMPR	.556	.240	2.319	.022	.146	6.832
ΔSMB	.202	.076	2.659	.009	.540	1.851
ΔHQR	.003	.120	.022	.982	.176	5.690
ΔRIR	.113	.079	1.441	.153	.600	1.668
R	.866					
R Square	.750					
Adjusted R Square	.730					
F	37.098			.000		

Number of Observation=132; Durbin-Watson (d) =2.131
Source: Analysis output

Conclusion and Recommentation

This study analyzed sukuk market from several perspectives. All the perspectives and views confirm that regression models reveals sukuk return are exposed to market risk, operational risk, credit risk and liquidity risk. Since all significant values of all the models are less than 0.05, all the F statistics of these models prove that the models are significant at the 5% level and acceptable. The regression analyses of Nasdaq Dubai sectorial based sukuk return found four models explaining70% to 89 % of variation of risk impact on sukuk return. As such global sukuk return, sovereign sukuk return, corporate sukuk return, and financial sukuk returns are 88%, 70%, 89% and 73% exposed to risk respectively.

The analysis of global sectorial based results indicates that sovereign sukuk return is very less exposed to risk compared with other sectors corporate sukuk and finance sukuk. Therefore, it is possible to conclude that sovereign sukuk return is minimally exposed to risk. It is also found that when corporate sector is compared with the finance sector, risk impact is high in the corporate sector. These results can be justified as explanatory power focuses more on credit risk and maturity risk. Empirical findings prove these findings.

This study suggest that on the bases of research findings inflation rate risk should be controlled at an optimal level for the benefit of macroeconomic stability. Further, most of the sukuk investors have enjoyed a reasonable fixed return for the last couple of years plus high capital gain due to heavy market demand. However, these investors are expected to face future interest rate risk once the global market recovers. Therefore, it is recommended that relevant government authorities of respective countries should maintain financial stability, liquidation, law enactment in favor of sukuk should be motivated periodically.

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