Sukuk Risk: Analysis and Management

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Abstract — A distinctive feature of Islamic finance is the element of risk, which is largely considered as being the dividing line between Halal profit and Haram predetermined return (Riba). Uncertainty, which is often used to denote risk, is present in all Islamic financial transactions. However, risk in Islamic finance has its unique attributes and distinctive characteristics.

This paper aims to discuss the concept and meaning; sources and causes; and mechanism of dealing with and controlling Sukuk risks, with focus on the Islamic perspective and Al Shariah rules in dealing with such risks. This involves highlighting whether or not Sukuk are less risky than the conventional bonds, and to what extent the conventional strategies of measuring and managing risk could be used to measure and manage Sukuk risks.

Index Terms — Islamic Finance, Conventional Risk, Islamic Risk, Sukuk Risk, Diversification, Hedging, Systematic and Nonsystematic Risk, Standard Deviation and Beta Coefficient

I. INTRODUCTION

In terms of terminology, "Sukuk" is a classical Arabic word which is plural of "Sakk". The Sakk means legal instrument or document represents obligations in compliance with Islamic law or "Shariah" (Junaid and Azhar, 2010, p.22). In simple term Sukuk is an Islamic financial instrument or security which represent the ownership of an asset (IFSB, 2009). It is an Islamic investment certificate that has claims not only on the cash flows or revenue generated by the asset but also an ownership claim of the asset. The Sukuk holder shares the profits and risks of the business instead of receiving fixed interest.

Islamic Development Bank has defined the sukuk as, "an asset-backed bond which is structured in accordance with the Shariah and which may be traded in the market" (IDB, 2004). Accounting and Auditing Organization for Islamic Institutions defines the Sukuk as, "certificates of equal value representing shares in the ownership of tangible assets of particular projects or special investment activity" (AAOIFI, 2008).

(Godlewski, Ariss and Weill, 2010) defined Sukuk as securities issued by sovereign and corporations. They are investment certificates with bond features and stock features, which are issued to finance trade or the production of tangible assets. Similar to bonds, Sukuk certificates have a maturity date, and holders are entitled to a regular stream of income over the life of Sukuk in addition to payments at maturity. Further, Sukuk and shares are similar financial instruments in the sense that they represent ownership claims and that the return on both investments is not guaranteed, but Sukuk are related to a specific asset or project for a period of time, whereas stocks represent ownership claims on the whole company with no maturity date.

Compared with bonds, Sukuk has a short history. The first sovereign Sukuk was issued in Malaysia in 1995. Since then, Malaysia remains an active player in Islamic capital market. Ernst and Young analysts define three phases in Sukuk development. The first phase, when issues were low, covers the period from 1996 to 2001, also known as the period of Sukuk "birth". 2002 to 2007 witnessed the biggest volume in Sukuk issuance, both in number and size. Period since 2007 reflects slowdown in the Sukuk market due to global financial crisis and problems with Shariah compliance of Sukuk issues.

Risk awareness has become increasingly important as a common issue, not only in institutions but also at the individual level as risk is the common feature of any human action or behavior. The concept of risk in the financial sector, whether conventional or Islamic, does not mean the possibility of harm or adverse impact, rather risk in the financial field is related to the uncertainty, which may be pure risk or speculative risk. If the outcome carries some benefits more than the expectations, risk is terms speculative. Whereas, pure risk is one that produces negative consequences only

The uniqueness of risks associated with the Islamic modes of finance, like Sukuk, are signified by: the prohibition of debt-based financial activities and the concept of profit-and-loss sharing (PLS), which jointly constitute the core foundation of Islamic banking and finance. In other words, risk must be presented in any financial transactions in order for such transactions to comply with Shariah rules and regulations (Kayed and Mohamed, 2007, p. 3).
This paper aims to discuss the concept of Sukuk risk management from Islamic perspectives. In particular, the paper focuses on the possibility of using conventional risk management strategies, diversification and hedging, in managing Sukuk risk. The Islamic financial risk management market is still at a very infancy stage. This is mainly due to the incompatibility nature of various financial risk management tools, namely derivatives instruments to the fundamental principles of Shariah. Some Shariah scholars have taken the view that certain hedging arrangement may be allowed, provided that the instrument itself is structured in a Shariah-compliant manner.

The results of this study would give advice to portfolio managers, banks and other financial institutions regarding the suitable measures of Sukuk risks and efficient strategies for managing Sukuk risk.

**Main Research Question:**
- What is the importance of risk management in Islamic financial systems?
- What are the major risks associated with the Sukuk?
- Are Sukuk less risky than conventional bonds?
- What kinds of tools are used to manage or hedge Sukuk risks?
- To what extent could the conventional risk management strategies be used to manage the sukuk risk?

In order to tackle the above stated inquiries, the researcher followed logical thinking based on finance theory and reached the study assumption: the risk measurement tools and the risk management strategies in conventional finance theories could be applied in managing sukuk risk, keeping Al Shariah rules. The methodology of the study depends on comparative analysis of both risk management in conventional theories and Islamic risk management, by focusing on Sukuk risk to investigate to what extent the conventional measures and strategies could be applied for Sukuk.

The paper is structured as follows. The next section covers the literature review of Islamic risk management focusing on Sukuk. Sections 3 and 4 explain the types of Sukuk and the difference between Sukuk and conventional bonds. Risk analysis in conventional theories is deliberated in section 5. Section 6 highlights the risks associated with Sukuk. Sections 7 and 8 apply comparative analysis to elaborate the difference between risk strategies in both conventional and Islamic prospective. Where, section 9 investigates the application of conventional risk strategies on the Sukuk risk. Sections 10 and 11 are the conclusion and references.

**II. LITERATURE REVIEW**

Islamic finance is run and governed by the Islamic law, Shariah. There are some main principles on which whole Islamic economics and financial system are built like interest is forbidden, transactions include speculations and uncertainty is not allowed, every economic activity and transaction includes risk sharing.

Three components in Islamic finance are identified in theories which are Islamic banking, Islamic insurance or takaful and Islamic capital market. Sukuk is an important financial instrument of the Islamic capital market which represents almost 90% of the whole Islamic capital market. There are 14 recognized types of Sukuk but only seven Sukuk structures are famous and commonly issued which are Mudaraba Sukuk, Musharaka Sukuk, Ijara Sukuk, Murabaha Sukuk, Salam Sukuk, Istiana Sukuk and Hybris Sukuk (Junaid and Azhar, 2010, p.35).

In order to issue Sukuk, Special Purpose Vehicle (SPV) is established as trustee on the part of Sukuk holders. It manages and monitors the whole Sukuk transaction according the specific type and nature of the issued Sukuk. Every Sukuk is designed to meet specific financial need on the principles of Islamic financing.

Theories suggest that Sukuk, traditional bond and share are not the same. There are a lot of differences between the three instruments, Sukuk have advantages over the traditional bond because it is based on real, identifiable, economic transaction which is totally backed by the real asset or service which leads towards the sustainable, stable economic growth and welfare in the society as whole. Risk sharing feature of Sukuk structure makes the wealth distribution equal and justifiable in the whole society (Nanaeva, 2010, p. 20).

Sukuk risks are broadly classified into systematic risks and unsystematic risks. Risks are managed or minimized but cannot be eliminated at all. Risk management is an integral part of the financial planning. Risk management is a cycle in which risk is assessed, evaluated, managed and measured. It is a continuous process.

Traditionally market risks are managed through derivatives instruments like options, futures, forward and swaps contracts. They are used almost all over the world now. Risk management of Islamic capital market is become more important because of the risk sharing feature of Islamic finance. Risks are managed without using speculative instrument like traditional derivatives and without interest bearing contract or activity.

All these make the risk management of Sukuk more complex and difficult in the current scenario. Theories also identified the framework to be used for the risk management of Islamic capital market without violating the basic principles of the Shariah. Every transaction is backed by the real, identifiable asset or service, lender has the ownership in the asset or services, no use of speculative or interest based instrument and transaction. All these boundaries make the risk management of the Sukuk more challenging and complex in the current dominated traditional system.

**III. TYPES OF SUKUK**

Sukuk structure varies from Murabaha (cost-plus sales), Salam (pre-payment of an asset for future delivery), Ijara
Sukuk holders are entitled for the sale price (cost plus profit) of that commodity which normally paid in installments over a specified period of time.

4) *Ijara Sukuk* is an alternative to traditional leasing. In Ijara Sukuk structure, the SPV buys assets for the Sukuk issuer. Then the assets are leased back to the Sukuk issuer for a stated period, with the agreement to sell the asset back to the lessee at the end of the lease period. At the same time, the SPV issues Ijara certificates to investors representing undivided ownership in the underlying asset. Over the term of the lease contract, the SPV receives rental payments for the use of the asset and distributes them to the certificate holders in proportion to their ownership. At the maturity, payments for Sukuk holders stop and asset ownership reverts to the lease. If the asset has a market value, Sukuk holders can realize a capital gain or loss.1

5) *Salam Sukuk* is used to conduct a forward commodity contract, the price of the commodity or asset is fully paid to the seller by the buyer at spot but delivery will be made at specific future time date. The commodity should be standardized, quality and quantity is well determinable and it is easily available in the market. The future delivery date and place should be clearly mentioned in the contract (Usmani, 2002, p. 24).

The SPV issues Salam Sukuk to raise funds in order to purchase the specific commodity at specific price with specific future delivery date. Corporation or seller gets the full sale price in advance and this sale price is lower than the future price. The SPV takes delivery and sell the commodity at market price that is higher than the purchase price. Difference is the profit that is distributed among the Salam Sukuk holders.

6) *Istisna Sukuk* is used for the purpose of financing a big and complex capital intensive projects or assets. For example the manufacturing of airplane, ships and the development of big infrastructures projects. The SPV raises funds required to pay the sale price. These funds should be used for the manufacturing or developing the project or asset. At the maturity the SPV can either sell or lease and all profits should be distributed to the Istisna Sukuk holders.

7) *Hybrid Sukuk*, this type of Sukuk is structuring by combining the principle of multiple Sukuk structures like Ijara, Mudaraba and Istisna which comprised by a pool of assets. Diversified pool of asset comprised on different structures of Sukuk provided more attractiveness to the investors in the market.

This kind of Sukuk structure is designed by keeping in view the different needs of the different finance users. It comprises more than one feature of different Sukuk structures available in the market. The SPV takes the assets and

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1 If the underlying asset is a public good for which there is no market, Sukuk holders exercise an embedded put option whereby the originator buys back the underlying assets at face value.
Murabaha contact from the borrower, then it issues the hybrid Sukuk to raise funds to pay for the assets then borrower purchased the asset from the SPV at agreed price. All proceeds and profits are distributed to the holder of Sukuk. the Hybrid Sukuk first issued by the Islamic Development Bank (IDB) of the amount 400 million dollars. This structure consists on asset pool comprised 65.5% of Sukuk Ijara, 3% Sukuk al-Istisna and 31.5% Murabaha (Junaid and Azhar, 2010, p.31).

IV. DIFFERENCE BETWEEN SUKUK AND CONVENTIONAL BOND

The recent controversy on the compliance of Sukuk with the precepts of Shariah signals that Sukuk are generally structured along western rules of asset securitization, and raises the question of whether these innovative financial instruments are really different from conventional bonds. According to (Miller, Challoner and Atta (2007), Sukuk are structured in a way to insure an equivalent return to a conventional bond, the difference being that the return on the Sukuk is generated from an underlying asset and not from the obligation to pay interest to simplify the risk assessment of these new instruments.

Shariah scholars like (Usmani, 2002) also argued that issuing Sukuk replicate the structure of conventional bonds in terms of lack of ownership, right to a fixed return, and the guarantee of repayment of principal.

Sheikh Mohamed Taqi Usmani, Chairman of the Shariah Council of AAOIFI, is a leading scholar in the area of Islamic finance. His recent criticism of modern Sukuk issuance provoked confusion and instability in the Islamic capital market. According to this scholar, most of Sukuk issuances resemble conventional bonds to the extent that they do not comply with Shariah rulings and cannot be considered as Islamic instruments.

Conventional bondholders receive regular interest payments on their investments, which is determined as a percentage from the principal amount. According to (Usmani, 2008) Sukuk structure cannot use fixed interest rate or market index, such as LIBOR, as a return for the initial Sukuk investment. Rather Sukuk payments should reflect actual returns of the underlying assets. Thus, when issuing Sukuk the manager should only announce the expected returns on the project as well as the ratio of distribution of returns between Sukuk holders and managers of Sukuk. However, most of Sukuk issues promise returns equal to the market interest rate in order to attract more investors.

Alternatively (Cakir and Raei, 2007) took an opposing stand on the suspected comparability of Sukuk and conventional bonds, suggesting that Sukuk are different financial instruments compared to conventional bonds. The authors examine the risk reduction advantages of issuing sovereign Sukuk as alternative financing instruments compared to sovereign conventional bonds. Using a sample of sovereign Sukuk and Eurobonds by the same issuer, the authors estimate and compare the valut-at-risk (VaR) for a portfolio that includes both instruments to another portfolio that only comprises Eurobonds. They find that VaR is reduced when Sukuk are added to the portfolio of fixed-income securities. Implying that these investment certificated offer diversification benefits for investors.

Bond is considered to be relatively safe financial instrument. The most common risks associated with bond are presented below (Fabozzi, 1996, p. 32):

a) Interest rate risk (risk of return): As a fixed –income instrument, bond yield has an inverse relation with interest rate movement. When market interest rate grows, bond price decreases and vice versa. The longer is the maturity of the bond, the higher is potential of interest rate growth and, therefore the higher is its interest rate risk.

b) Risk of default: There is a risk that the issuer would not be able to make regular payments (coupons) or to repay the principal amount. While some financial institutions have dedicated departments which evaluate the credibility of bond issuers, most of investors rely on rating agencies.

c) Inflation risk: Due to its fixed-income nature, the investor bears the risk that inflation can be higher than the coupon payment, which lead to shrink the real value of investment.

d) Liquidity risk: Bonds are considered to be less liquid instruments than stocks. Bond investor face the risk of not been able to trade securities due to the lack of potential buyers.

e) Foreign exchange rate: This risk can affect bond issued in foreign currency when the unfavorable currency fluctuations can decrease the initial value of investments.

Downgrade risk: In case when the issuer is downgraded, the bond price can drop significantly. Thus, investor who is willing to trade the bond in secondary market bears downgrade risk. In this regard, one should mention the role of rating agencies in bond price formation as well as their failure to react appropriately during the recent financial crisis. Some rating agencies were very slow to downgrade companies facing serious financial problems until they announced themselves bankrupt (Nanaeva, 2010, p. p. 21-22).

V. RISK ANALYSIS IN CONVENTIONAL THEORIES

There are various definitions of risk in modern economic literature. If generalizing, one can determine risk as an uncertainty or variation around some average value. (Reilly and Brown, 2012) defined risk as uncertainty of future outcomes, or it is the probability of an adverse outcome. Risk is usually measured as a standard deviation or variation of outcomes (Doff, 2008, p. 320).

In the early 1960s, the investment community talked about risk, but there was no specific measure for the term risk. To build a portfolio model, investors had to quantify their risk variable. The basic portfolio model was developed by Harry
Markowitz (1952, 1959), who derived the expected rate of return for asset and for a portfolio of assets and an expected risk measure for both (Reilly and Brown, 2012, p.p. 10-13).

(a) Expected rate of return for an asset (or portfolio), an investor determines how certain the expected rate of return on an investment is by analyzing estimates of possible returns. These probability values range from zero, which means no chance of the return, to one, which indicates complete certainty that the investment will provide the specified rate of return. These probabilities are typically subjective estimates based on the historical performance of the investment or similar investments modified by the future expectations of an investor.

The expected rate of return from an investment (asset or portfolio) is defined by the following formula:

\[ E(\text{R}_i) = \sum_{i=1}^{n} (P_i)(R_i) \]

Where \( P_i \) is the probability of the possible rate of return, \( R_i \) is the return on the investment.

The expected return represents mean (average return).

(b) Risk of an asset (or portfolio), according to Markowitz model, the uncertainty or risk of an investment could be evaluated by identifying the range of possible returns from that investment and assigning each possible return a weight based on the probability that it will occur. In other words, risk is the dispersion of possible returns, most investors want to quantify this dispersion using statistical techniques. These statistical measures allow an investor to compare the return and risk measures for alternative investments directly. Two possible measures of risk (uncertainty) have received support in theoretical work on portfolio theory: the variance and the standard deviation.

\[ \text{Variance} = \sum_{i=1}^{n} (R_i - E(\text{R}_i))^2 P_i \]

\[ \text{Standard Deviation} = \sqrt{\sum_{i=1}^{n} (R_i - E(\text{R}_i))^2 P_i} \]

Under Markowitz theory, the major sources of uncertainty or risk include: business risk, financial risk, liquidity risk, exchange rate risk and political risk.

1) **Business risk** is the uncertainty caused by the nature of the firm business.

2) **Financial risk** is the uncertainty introduced by the method by which the firm finances its investments. This risk increases with great reliance on debt in financing structure.

3) **Liquidity risk** is the uncertainty introduced by the second market for an investment. When an investor acquires an asset, he expects to be able to convert the security into cash. The more difficult it is to liquidate it, the greater the liquidity risk.

4) **Exchange rate risk** is the uncertainty of returns to an investor who acquires securities denominated in a currency different from his or her own. This risk is becoming greater when investors buy and sell assets around the world.

5) **Political risk or "country risk"** is the uncertainty of returns caused by the possibility of a major change in the political or economic environment of a country.

Markowitz defined the total risk of an asset (or portfolio) that includes two components, systematic risk and non-systematic risk (Reilly and Brown, 2012. P.p. 17-18).

(a) Systematic risk is called "market risk" that caused by macroeconomic variables such as volatility of money supply or interest rate, government policies, natural disasters and financial crisis.

(b) Non-systematic risk or "non-market risk" is a unique risk caused by business conditions of some firms such as unqualified staff and bad management conditions.

According to the classification of total risk into systematic and non-systematic risk, it is possible to redefine the sources of risk discussed earlier again. Systematic risk includes exchange rate risk and political risk. While, non-systematic risk includes business risk, financial risk and liquidity risk.

VI. MAJOR RISKS ASSOCIATED WITH THE SUKUK

Risk management has become an integral part for Sukuk structure now. The success and failure of Sukuk market is greatly correlated with the ability to manage risks of Sukuk to be minimized as much as possible. Development of sukuk and its rapid growth in recent years has proved the validity of the Islamic financial system and its ability to meet the modern business and challenges. But maintaining this growth may be impossible without proper risk management of Sukuk structure. Sukuk is a unique product of capital market and has its own structure and features which are different from other products like conventional bonds and shares. So its risk are also not the same to those (Junaid and Azhar, 2010, p.41).

Identification of risks associated with the Sukuk is the first and most important step towards the better risk management. Unless one cannot able to properly identify the risks, it is impossible to think about hedging or managing these risks. There are many risks which are associated with Sukuk, and the following analysis will explain those.

1) **Regulatory risk**

Everything needs to be regulated well in order to get benefit from it, this is true in the case of Sukuk and its market as well. Sukuk market is not yet regulated to the full extent, no standardized and documented transaction structure of Sukuk. For example, in case of default the Shariah law is not well regulated with respect to Sukuk transactions in case of default.

Lack of standardized regulations governing the Islamic finance is a major impediment to further development of the whole market, including Sukuk. Several international
institutions have been established to produce the standards and regulations, including AAOIFI\(^2\) and IFSB\(^3\).

AAOIFI was established in Bahrain in March 1991. Its objectives is to prepare accounting, auditing and governmental standards for successful functioning of International Financial Institutions. IFSB was established in Kuala Lumpur, Malaysia, in November 2002 with a purpose to develop international prudential and supervisory standards for International Financial Institutions.

AAOIFI issued its statement in February 2008 that based on 6 principles (Nanaeva, 2010, p. 33):

a) Investors should be legal holders of an underlying asset and not holders of a nominal security.

b) Investors cannot guarantee principal amount of Sukuk by promising to buy an underlying asset at its face value.

c) The asset can be bought back only at its current market price, thus the face value of Sukuk should not be secured.

d) Investors cannot be offered a loan when earnings from the underlying asset fall below expected value.

e) Issuers can create special reserve accounts to cover such unexpected falls.

f) Responsibility of Shariah scholars should not be limited to issuing of Fatwa at initial staged of structuring Sukuk but also include proper supervision of all stages of Sukuk Issuance.

2) Shariah compliance risk

Sukuk structure are governed by the Shariah and based on the principles of Islamic finance. Every Sukuk structure should be in compliance with Shariah at all stages from issue to maturity. Shariah compliance risk is a risk applicable only to Islamic instruments. It is described by Usmani (2008) as a risk of loss of asset value due to Sukuk in compliance with Shariah principles.

Each issue of Sukuk should be approved by Shariah board as compliant to Islamic rulings. This type of risk becomes very important in light of recent criticism by some Shariah Scholars about non-Islamic nature of most of the modern Sukuk. Consequences of issuing financial instruments non-compliant with Shariah can be very damaging to the reputation of issuer and may require extensive efforts to regain the confidence of investors (Obaidullah, M., 2009, p. 12).

Shariah law is based on Quran and Sunnah, but since not all situations are covered in these sources, some Fatwas are built on Ijtihad – personal reasoning. Thus, many comments of the scholars are based on their abilities to generalize the situation and draw the conclusion. As a result, conclusions differ significantly from one Shariah board to another.

3) Liquidity risk

Liquidity risk is vital for Islamic finance in general and Sukuk in particular. International financial institutions have limited instruments to manage their liquidity, due to Shariah restriction on trade of debt and other securities. Short-term interbank lending as well as "last resort" lending from the central bank are not available for Islamic banks due to prohibition of Riba. While Malaysia has developed inter-bank lending based on profit and loss sharing, but all other countries have no such instrument (Artinin, 2012, P. 69).

Conventional bond market, while more liquid than Sukuk market, is still considered less liquid than equity market. Most of the trading in bond market is done "over-the-counter" OTC rather than in organized exchanges. While conventional financial institutions have various instruments to manage their liquidity, Thus, development of appropriate secondary market is crucial for Sukuk more than for conventional bonds. But secondary market progress is highly dependent on development of primary market. High demand for Sukuk should meet enough supply.

According to (Tag El-Din, 2007), In order to develop liquid secondary market, governments should be more active in issuing Sukuk with issues representing variety of maturity, types of risk-bearing. Good initiative in this field was presented by the government of Bahrain, which has issued three and six month maturity Sukuk. Governments should also provide appropriate regulatory standards for transparent and sound and secondary market with easy access for any potential investor.

4) Risk of default (Credit risk)

Credit risk refers to the possibility that the counterparty will fail to meet its obligations either principal or coupon so it is also called default risk. Sukuk structures have an asset backed feature of financing and are totally secured, all cash flow and profits generated by the asset are distributed to the Sukuk holders according to their share and nature of Sukuk. However, in practice most of Sukuk issued are not asset-backed in a real sense. For instance in case of Ijarah Sukuk, the performance of asset no more matter of concern for Sukuk holders. Borrower undertakes to repurchase the asset at maturity which is equal to the face value of Sukuk outstanding. Sukuk holders are interested in coupon payments at maturity. This leads to credit risk and the borrower may default either in coupon or face value of Sukuk at maturity. If Sukuk are purely designed in compliance of Shariah, there will be no credit risk because they are totally backed by asset (Junaid and Azhar, 2010, p.41).

Due to the fact that Shariah prohibits debt trading, any rescheduling of debt for higher mark up is forbidden under Sukuk. This prohibition makes risk of default higher for Sukuk compared with conventional bonds, since Sukuk issuers inclined to default (Tariq, 2007, p. 32).

Moreover, while conventional bond represents a debt obligation, Sukuk is a certificate of ownership, so in case of default, Sukuk holders have a very limited possibility to retrieve their initial investment. The managers of Sukuk can bear responsibility for any Sukuk default only within the limits

\(^2\) AAOIFI is Accounting and Auditing Organization for Islamic Financial Institutions.

\(^3\) IFSB is Islamic Financial Services Board.
of their control and capabilities. Therefore, in case if default occurs due to external factors, such as global financial crisis, all losses will be borne by Sukuk holders. However, some issues of Sukuk do not provide for legal ownership of underlying assets, but rather right of return, which is not shariah-compliant (Usmani, 2008).

Since there is no possibility to define the market value for underlying asset at the time of issuance to define its fair value, the parities should also clarify the ways of defining the market value as well as procedures and valuation techniques. (Nanaeva, 2010) argues that Sukuk managers can pay the difference between the market value of underlying asset and face value of Sukuk if the loss was occurred due to the poor performance of managers. But when loss occurs due to factors beyond the control of manager, Sukuk holders bear a full risk of possibility to lose the face value of Sukuk.

5) Market risk
Sukuk are exposed to market risk which include interest rate risk and Foreign exchange rate risk

5-1) Rate of return risk (interest rate risk)
Rate of return risk for Sukuk is similar to fixed-rate risk of conventional bond due to the fact that most of the modern Sukuk issues have a fixed payment. Thus, when the market interest rate rises, Sukuk value drops. If Sukuk structured as appropriate Shariah instrument, when returns are calculated based on real profits from underlying asset, these types of risk can be significantly reduced or even avoided (Usmani, 2008).

5-2) Foreign exchange rate risk
Foreign exchange rate risk is applicable to Sukuk with an underlying asset denominated in one currency and Sukuk certificates issued in another country. As suggested by (Tariq, 2007) in this case exchange rate fluctuations can lead to a loss by investor or issuer.

Since Sukuk became international financial instrument it is difficult to avoid this type of risk. In some issues, like Islamic Dubahi Board (IDB) originator of Sukuk can avoid this risk by using several currencies in their issues.

One should also mention that Sukuk can be used as an instrument to manage foreign exchange risk. Sukuk helps to diversify investment portfolios of Islamic institutions and can be used by foreign investors as a hedging instrument to manage exchange rate risk when issued in a domestic currency.

6) Asset related risk
All Sukuk issues should be backed by tangible assets, but there are some difficulties in identifying the appropriate underlying asset. The asset should meet Shariah requirements and be able to provide attractive returns. These principles can be difficult to apply in Non-Muslim societies, where differentiation between Haram (forbidden by Shariah) and Halal (permissible by Shariah rules) activities is often misunderstood and more complex than in countries with established Shariah principles. Until recently, the main underlying asset used for Sukuk issuance was a real estate.

As mentioned by (Nanaeva, 2010, p. 31), number of assets that can be used as underlying is limited and the issuer of Sukuk should wait until its maturity in order to use the same underlying asset for a new issue. In order to manage this problem, some innovative structures were implemented for the recent issues of Ijarah Sukuk, where the originator, lessee of an asset, has an option to substitute part or entire pool of assets with another asset of similar value. This will allow him to reduce asset related risk and obtain additional resources by selling substitute assets, and use resources for the next phase of the project.

7) Staff related risk
There is a serious lack of specialists in the area of Islamic finance. Since Sukuk circulate in conventional markets, such specialists should have a dual expertise in conventional instruments as well as basic Shariah rulings. There are opinions that since Islamic principles are very transparent and easy to understand, experts with knowledge of traditional market can be educated into Islamic finance experts (Ibid, p. 34).

8) Other Sukuk related problems

- Limited historical data on Sukuk performance, lack of research and absence of empirical studies are the most bottlenecks in the area of Sukuk development. Lack of transparency among international Islamic institutions and their unwillingness to disclose enough information create additional obstacles.
- The question of Sukuk taxation can be quite complicated, science the assets can be located in one country, investors in another and SPV in the third one. Unlike conventional bonds, Sukuk miss "tax shield" of interest payment, thus Sukuk cannot avoid the problem of double taxation.4
- Initial expenses for the issue can be higher than those associated with conventional bonds due to specific Shariah requirements towards Sukuk issuance and lack of standardization.

The following table reclassifies the Sukuk risk into systematic risk and non-systematic risk.

Table (1)
Risk associated with Sukuk
According to conventional risk classification

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<tr>
<th>Systematic (market risk)</th>
<th>Nonsystematic (specific risk)</th>
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<tr>
<td>Regulatory risk</td>
<td>Risk of default</td>
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<td>Shariah compliance risk</td>
<td>Asset related risk</td>
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<td>Liquidity risk</td>
<td>Staff-related risk</td>
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<td>Rate of return risk</td>
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<td>Foreign exchange risk</td>
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4 Malaysian provides tax holidays for certain modes of Sukuk (Krasicka and Nowak, 2012)
VII. RISK MANAGEMENT IN CONVENTIONAL THEORIES

Risk management in conventional theories depends on two main strategies, diversification and hedging.

1) Diversification

Diversification is the spreading of wealth over a variety of investments opportunities to eliminate risk by dividing up one’s investments across many relatively low-correlated assets, companies, industries, and countries. It is possible to considerably reduce one’s exposure to risk. The effect of reducing risk by including a large number of investments in a portfolio is called diversification (Reilly and Brown, 2012, p. 201).

As a consequence of diversification, the standard deviation of the returns of a portfolio is typically less than the average of the standard deviation of the returns of each of the individual investments. The diversification gains achieved by adding more investments will depend on the degree of correlation among the investments. The degree of correlation is measured by using the correlation coefficient.

Investor had to combine stocks that are not perfectly positively correlated with each other. The more negatively correlated a stock is with the other stocks in an investment portfolio, the greater the reduction in risk achieved by adding it to the portfolio.

The purpose of diversification is to reduce the standard deviation of the total portfolio by increasing the number of securities included in the portfolio. One set of studies examined the average standard deviation for numerous portfolios of randomly selected stocks of different samples sizes. Evans and Archer (1968) and Tole (1982) computed the standard deviation for portfolios of increasing size up to 20 stocks. The results indicated that the major benefits of diversification were achieved rather quickly with about 90% of the maximum benefit of diversification derived from portfolios of 12 to 18 stocks. Figure (1) shows this result (Gitman, 2009, p. 234).

As indicated by figure (1), unsystematic risk could be minimized by increasing the number of stocks (or assets) included in the portfolio, which maximize the benefits from diversification. Systematic risk is not affected by the diversification strategy, so it is called “non-diversified” risk because this risk is caused by economic and political factors or by natural phenomena. Then portfolio manager could not avoid this type of risk by including large number of imperfect correlated stocks in the portfolio.

The systematic risk could not be avoided by diversification, so the capital asset pricing theory (CAPM) redefines the relevant measure of risk from total volatility to just the non-diversifiable portion of the total volatility (systematic risk). This new risk measure is called the Beta coefficient, and it calculates the security systematic risk compared to that of the market portfolio.

The systematic risk of an individual asset is derived from regression model, referred to as the asset characteristic line with the market portfolio, its equation is:

\[ \text{R}_i = \alpha_i + \beta_i \text{R}_m + \epsilon \]

Where \( \text{R}_i \) is the return on asset \( i \), \( \text{R}_m \) is the return of market portfolio and the slop of this line is the coefficient beta \( \beta_i \) (Reilly and Brown, 2012, p. 204). Beta is an index of systematic risk. It measures the sensitivity of a stock’s returns to changes in returns on the market portfolio.

2) Hedging

Hedging is an alternative strategy for diversification that used to manage all types of price risk. The word “hedge” means making an investment to reduce the risk of adverse price movements in an asset. Normally, a hedge consists of taking an offsetting position in a related security, such as a future contract. An example of a hedge would be if you owned a stock, then sold a futures contract stating that you will sell your stock at a set price, therefore avoiding market fluctuations (Reilly and Brown, 2012, p.762).

A hedge is an investment position intended to offset potential losses that may be incurred by any investment. In other words, a hedge is used to reduce any substantial losses suffered by an individual or an organization. A hedge can be constructed from many types of financial instruments, including stocks, forward contracts, swaps, options and futures contracts.

All are called financial derivatives, which are contracts to buy or sell something for future delivery. Forwards and futures are contracts specifying future delivery of an amount of an item, at a price decided now. The delivery is obligatory, not optional. Futures contracts are similar to forward contracts, but futures are standardized contracts that are traded on exchanges.

Option is similar to a forward contract, but optional. Call option is a contract that gives the owner the right, but not the obligation, to buy an item in the future, at a price decided now. Put option is a contract that gives the owner the right, but not the obligation, to sell an item in the future, at a price decided now. Swaps are contracts to exchange one cash flow.
VIII. RISK MANAGEMENT FROM ISLAMIC PROSPECTIVE

Risk management of Islamic financial system is more complex than the conventional financial and economic system. This risk taking and sharing feature of Islamic financial system makes the growth and sustainability of the economy and the welfare of the society as whole in a long run. There are different approaches and principles to manage its risks without violating the basic principles of Shariah.

The framework of risk management of Islamic financial includes the following principles (Junaid and Azhar, 2010, p.33):

a) Asset backed transaction.
b) Ownership of asset.
c) Risk depends on real asset value.
d) Riba and Gharar free transaction.
e) Real investments and no use of speculation.
f) No open interest (no fixed rate of return).

But risk management is very complicated and difficult within the boundaries specified by the Shariah, because any transaction or investment which is used for the purpose of risk management has to back by real economic asset or services. Ownership has to lies with the fund provider or lender as per terms and conditions of the contract and he must share risks in a real sense up to the diminishing value of the asset or service. All transaction and instruments which are used for risk management has to be free from interest and speculative elements at all stages of transaction. Sukuk taxation requires close cooperation of tax lawyers, accountants and regulators (The Board of Taxation, 2010, p.p. 32-30).

IX. SUKUK RISK MANAGEMENT

Risk management of Sukuk structure is relatively a new concept. Many people do not have much understanding of it and which is the best strategy in long run. But it is clear now for everyone managing the sukuk that we should pay attention on its risks aspects in order to develop a safe and sound Sukuk market (Junaid and Azhar, 2010, p.42).

First of all one should understand that there is nothing risk free in this world. Risk exists in everything at some level and it cannot be denied. We cannot eliminate this risk all but efforts should be made to manage and to minimize it as much as possible. Then the conventional measures of risks that discussed earlier, variance and Beta coefficient, could be used to measure Sukuk risks.

The paper tries to examine to what extent the risk management strategies in conventional theories, diversification and hedging, could be used to manage Sukuk risk. Diversification is a very important strategy to minimize risk of Sukuk portfolio, but diversification is another problem for Sukuk market. Most of the issues are concentrating in the real estate sector and in two main geographical locations, mainly Gulf Corporation Countries GCC and Malaysia. For Islamic financial institution, with its limited investment opportunities, it can significantly increase riskiness of portfolio due to absence of any kind of diversification of risks (MIA, 2012, P. 15).

Hedging is another risk management strategy introduced by conventional theories. Hedging mainly depends on using derivatives as discussed earlier. While most of derivatives are clearly prohibited by Shariah scholars, but there are some options that can be attached to certain Islamic financial instruments. For example, Smolarski (2006) argues that call and put option can be used for hedging purposes. Obaiadullah (2004) analyses option by stipulation and option of determination as possible risk management instruments in Islamic finance.

Tariq (2007) suggests using embedded options as a tool for Sukuk risk reduction. He argues that Shariah, while prohibiting debt trade, allows its exchange for real goods, assets and services. Thus, Sukuk holder can have an option to exchange his zero-coupon istisnaa Sukuk, for example, to an apartment (after certain period) instead of waiting for maturity of Sukuk, the same author (Tariq, 2007) discusses a possibility of using swaps of floating-rate Sukuk with zero-coupon fixed rate embedded Sukuk as a Shariah compliant instrument. Most of the authors argue that options allow decreasing excessive risk (gharar), which should be avoided under Shariah ruling, but are presented at the current highly volatile market.

Most of academic agree that such kind of options should be permitted in Islamic finance and urge Shariah scholars to come with collective Fatwa on this point.

In 2007 the first convertible Sukuk was issued in Dubai, these Sukuk allow to convert initial Sukuk into common shares of the originator. In the same year in Malaysia, Khazanah National issued exchangeable Sukuk with an option to exchange them to existing shares of one of subsidiaries of the originator. These issues attracted high interest both from investors as well as potential issuers of Sukuk as examples of risk reduction alternatives.

Financial experts discussed possibility of further innovation in Sukuk, such as contingent convertible Sukuk and reserve convertible Sukuk. most of Shariah scholars have forbidden these kind of innovations due to their similarity with derivatives and excessive uncertainty (Abdullah and Ismail, 2008).

X. CONCLUSION

The system of Islamic finance is based on principles of justice and equal distribution of financial resources in society, the function which has failed by conventional financial system. But Islamic financial institutions work in interest – based financial system, the scholars should allow some flexibility in structuring Islamic financial instruments. But unfortunately, the recent trend shows that the new modes of financing introduced by Islamic financial institutions imitate

for another over a specified period. Most of derivatives marketed through over-the-counter (OTC) (Stulz, 2005, p. 24).
conventional instruments further distancing them from core Islamic principles.

As bearing risk in real asset is the feature of Sukuk and it should be a part of any Sukuk structure. Asset risk management practices should be implemented. Steps have to be taken by regulator to product innovation and documentation. Islamic credit rating agencies should be established who will rate the asset according to the Shariah. Strong monitoring and audit of the Sukuk are required by the Islamic financial experts. It will lead to fully Shariah compliance. Implementing uniform regulations of the Sukuk structure around the world in order to make strong and stable Islamic capital market, better and effective Sukuk regulation should be made which will documented and implemented all over the world uniformly. Efforts should be made on human resource development in Islamic financial sector.

The main findings of the paper are that conventional risk measurements, variance for total risk and Beta coefficient for systematic risk, could be used to measure total risk and systematic risk of Sukuk. And conventional risk management strategies, diversification and hedging, are the main tools in managing Sukuk risk, keeping in mind the rules of Shariah.

REFERENCES