Valuation Of Islamic Financial Certificates: Participation In Return/Risk Approach Case Study Of Applications And Models From The Malaysian Bonds And Sukuk Market

تقييم شهادات الاستثمار الاسلامية: مقاربة المشاركة في العائد/ المخاطرة دراسة تطبيقية على تطبيقات ونماذج من السندات والصكوك في السوق الماليزية

GHEDDAR Rafiq

- University of setif1 – Alegria .

rafik.gheddar@univ-setif.dz

Submission date: 07/10/2017 **Acceptance date: 10/12/2018** **Publication date: 31/12/2018**

Abstract:

There are fundamental risk/return differences between the conventional bonds and Sukuk, in the conventional bond the underlying asset is money (debt) and in the Sukuk the underlying asset is indeed an asset. Sukuk investor has rights integral to information on the use of the investment, the nature of the underlying assets. Indeed, a better valuation of Sukuk indicates that the participation's rate of return is functionally related to: the risk of future investment returns and the marginal efficiency of investment.

In this context, Malaysia represents the most interesting fieldwork to address the research because it is by far the most dynamic country for the issuance and trading of Sukuk and conventional bonds.

- **Key words**: Sukuk, fair value, actualisation coefficient, participation return rate, Malaysian financial market.
- **Jel Classification**; G11, G12, G23

الملخص:

يوجد اختلاف أساسي من حيث العائد/المخاطرة بين السندات التقليدية والصكوك، حيث في السندات التقليدية العلاقة مداينة في حين أن الأصل المرجعي للصك هو أصل حقيقي. للمستثمر في الصك الحق في المعلومات الكاملة مع عائد مرتبط بالأصل المستثمر به. والتقييم الأفضل للصكوك يتطلب التحقق من كون معدل عائد المشاركة يرتبط وظيفيا بالعوائد المستقبلية ومخاطرها والكفاءة الحدية للإستثمار.

في هذا الإطار يوفر النموذج الماليزي ميدانا ذا أهمية وأولوية للدراسة باعتبار سوقها المالية هي الأكثر حركية في إصدار وتداول الصكوك إلى جانب السندات التقليدية.

- **الكلمات الدالة**: صكوك، قيمة العادلة، قيمة حالية، معدل عائد المشاركة، سوق مالي ماليزي.
- **التصنيف jel:** G11, G12, G23

Author Correspondent: Dr. GHEDDAR Rafiq ; Email; rafik.gheddar@univ-setif.dz

I - Salient Features of Islamic Finance and Sukuk valuation

A-Principles of Islamic finance; *Islamic finance refers to a system that functions on the principles of Islamic Law, under this law; all Islamic financial transactions must be free of the following:*[1]

a) The payment or acceptance of interest (Riba) for a loan is absolutely forbidden, the word "Riba" means excess or addition and implies excess compensation without due consideration;

b) Trading under uncertainty (Gharar) in financial transactions must be eliminated. The Sharia defines Gharar as a situation whose consequences are hidden or are unknown. Some scholars have defined it as a "zero sum game with unequal payoffs";

c) Under Islamic Law, money is not an asset, an individual or an institution should not be able to generate income from money;

d) A return on capital is justified only when the capital has taken the form of real (non-monetary)assets;

e) Islamic finance distinguishes between the time value of money as a measure of investment efficiency and means of determining yield. Therefore, yields are either based on profit or loss sharing in the enterprise or negotiated price for sale or lease transactions.

Therefore, the system which prohibited a fixed ex-ante interest rate and allowed the rate of return on capital to be determined ex-post, based on the returns to the economic activity in which the funds were employed, was theoretically viable.[2]

B- The Sukuk; definition and characteristics;

Auditing Organization for Islamic Financial Institutions (AAOIFI) Standard 17 defines "investment Sukuk" as being:[3]

Certificates of equal value representing after closing subscription, receipt of the value of the certificates and putting it to use as planned, common title to shares and rights in tangible assets, usufructs and services, or equity of a given project or equity of a special investment activity.

The real quantum of cash flows received by bond investors is not fixed and is only declared after the cash flows are earned,[4] *the investment in the Islamic bonds or Sukuk of Mudarabah or Musharakah represents ownership of units of equal value and are registered in the holders on the basis of undivided ownership of shares in the mudarabah and musharakah equity and its returns are according to percentage of ownership of share, the owners of such Sukuk are the capital providers.*

Sukuk are investment certificates with bond- and stock-like features and have a maturity date and holders are entitled to an expected stream of income over the life of the Sukuk in addition to another clearing payment at maturity, however Sukuk are asset-based (rather than asset-backed) securities with the underlying being Shari'ah compliant in its nature and use.

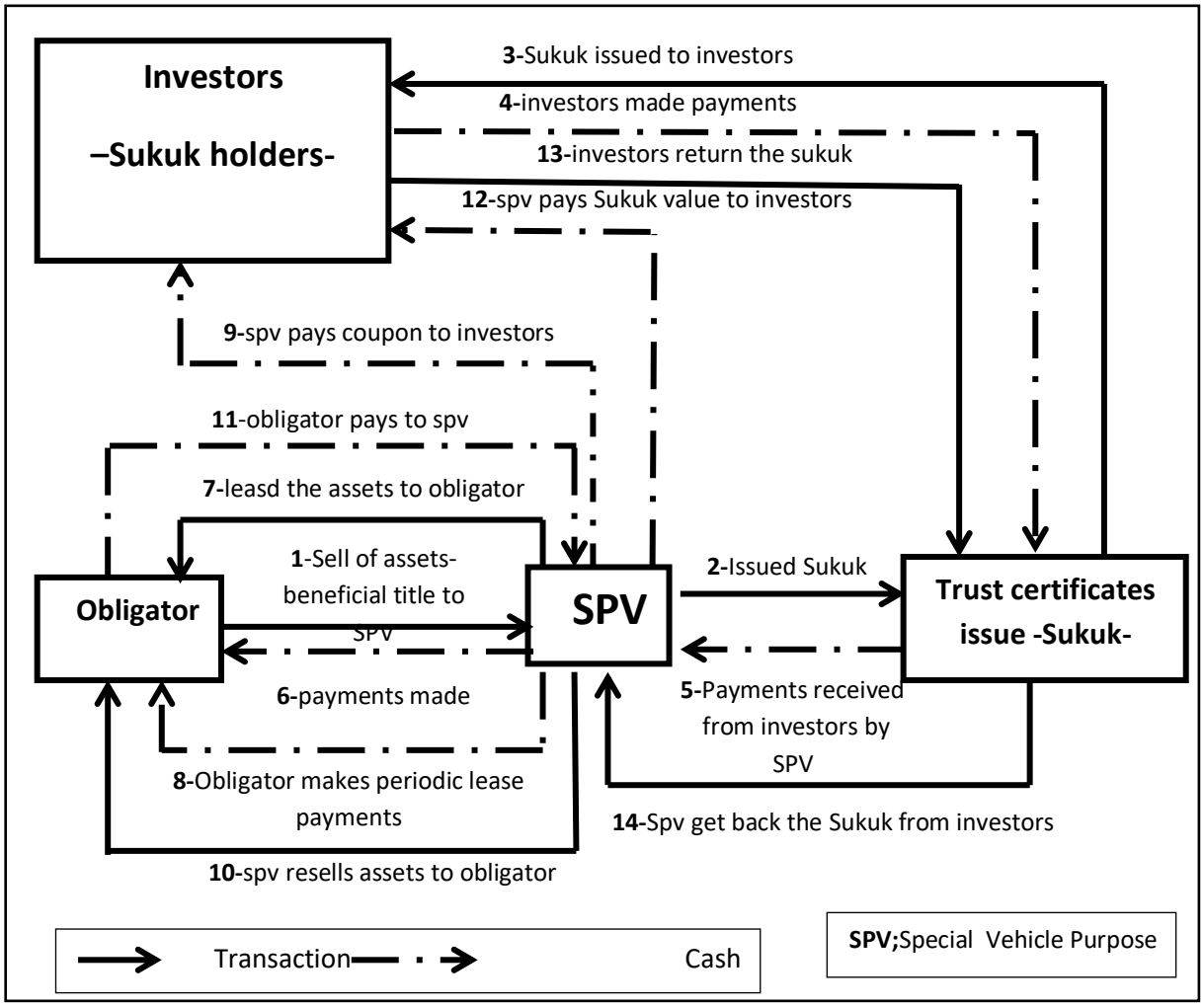
Further Sukuk and shares of stock are similar financial instruments in the sense that they represent ownership claims and that the return on both investments is not guaranteed,

but Sukuk are related to a specific asset, service or project for a period of time, whereas equity shares represent ownership claims on the whole company with no maturity date.

The cash returns generated from the Musharakah are paid as profits to the investors, the returns on such participation certificates are contingent on the company fundamentals and not benchmarked to market rates,[5] They are also attractive to investors because they are negotiable instruments can be traded at the secondary market.

The following figure shows the structure of Sukuk instruments -Alijarh model- and stages and transactions and cash-flows associated.

Figure 01; Sukuk structure; transactions and cash-flows



Source; *Khalil ahmed; Sukuk, definition , structure and accounting issues; Munich Personal RePEc Archive ; MPRA Paper No. 33675, posted 25. September 2011, Available at http://mpra.ub.uni-muenchen.de/33675/.P3.*

C-The role of valuation*; Investment is a commitment of funds for a period of time to derive required rate of return, the required rate of return should be close to the intrinsic value such that a gain or profit can be made from the investment, before making a decision to buy a security for investment.*

The valuation process is to determine the real meaning of the disclosed profit, or determine the true future value of the security, company or asset for gainful result in the

investment decision process,[6] although the value of a security is determined by its quality and earning potential, the economic environment and the performance of a firm's industry also have a direct influence on the value of a security and its yield.

D- Theory of valuation: *The value of an asset is the present value of its expected return, this process of valuation requires estimates of; (a) the stream of expected returns and (b) the required rate of return.*

An estimate of the expected return from an investment encompasses not only the amount but also the form, time pattern, and uncertainty of returns which affect the required rate of return.

*1-**Decision rule:*** *The investment decision process finally boils down to the following:*

If estimated value > market price; Undervalued- Buy

If estimated value < market price; Overvalued- Don't Buy.

The theory of value provides a common framework for the valuation of all investments.

In Islamic economy the participation return rate is functionally related to: the risk of future investment returns and the marginal efficiency of investment, this rate is the sum of two components: the required rate of return and risk premium, when the required rate of return is essentially a part from the marginal efficiency of real investment,[7] required rate of return is very important for an investor in order to assess future investment opportunities and to re-evaluate existing investments, In fact it is an important concept that forms the basis for all decision making.

2- Fair Value of Sukuk as financial instruments

(a) Fair value and profitability of Sukuk; *Fair value is normally defined as the amount which the instrument could be exchanged or settled between knowledgeable and willing parties in a length transaction, other than forced or liquidation sale,[8]the objective of Islamic valuation should be to provide both relevant and reliable value that can be relied on by the users of financial statements to make useful judgment and decision.*

There are three modes of issuing securities based on Musharakah concept –as a reference-:[9]

(i) Musharakah Sukuk (Participation Certificates); These are certificates representing projects or activities managed on the basis of Musharakah by appointing either one of the partners or another person to manage the operation;

(ii) Mudharabah Sukuk (Issuer is the manager); these are certificates that represent projects or activities that are managed on the basis of Mudharabah by appointing the mudharib for the management of the operation;

(iii) Wakalah Sukuk (Investment agency Sukuk); These are certificates that represent projects or activities that are managed on the basis of investment agency by appointing an agent to manage the operation on behalf of the certificate holders.

The formula for calculating the profit element to be paid to the provider of funds is as follows;[10] $\left[r = \frac{P.R.T.K}{100}\right]$

Where; r = Amount of profit to be paid to the provider of funds;

K = Principal investment;

R = Rate of gross profit (in percent) before distribution; P = Profit sharing ratio.

T = Number of years- invested.

(c) Risks Associated with Sukuk; *By design, a Sukuk is supposed to be a true asset – based securitization where the risk/return is passed on to the owners. However, the practice is different and it is often structured to minimize direct exposure to the underlying assets.*

Similar to the idea of value at risk (VaR), the risk to investors/depositors can be quantified by a measure of profit at risk (PaR) based on the historical profits and the volatility of returns. The PaR model assumes normal distribution and can be calculated as follows: [11]

$$\left[\boldsymbol{PaR = Z\alpha \times \delta P \times \sqrt{T}}\right]$$

Where: Zα = is the constant that gives the appropriate one - tailed confidence interval with a probability of (1–α) for the standard normal distribution (e.g., Z..01 = 2.33 for 99% confidence interval); (T) is the holding period or maturity of investment account as a fraction of a month; and (δp)as the standard deviation of the monthly profit as a percentage of assets.

The PaR measure can have multiple uses.

First, it can provide an indication of the level of volatility in the expected profits of investors, Secondly, it can determine the level of income-the Profit Equalization Reserves (PER) maintained by some Islamic Financial Institutions to mitigate displaced commercial risk. The correlation between the PER and the asset's return could, therefore, be an indicator of "displaced commercial risk." Thirdly, the PaR model can also be applied to individual business lines within the bank, such as the case of specific portfolios linked to restricted investment deposits to determine the level of risk. [12]

To compare Sukuk with various kinds of bonds the risk reward ratio was computed using the following notation;[13] $\left[RR = \frac{Yr}{\delta}\right]$

Where; RR = Risk Reward (Sharpe) Ratio , Yr = Yield Rate ; δ = Standard Deviation

II - Accepted models from conventional finance theory for Sukuk valuation;

A- Estimation of actualization rate; *Since the purpose of participating in financing the economy is generating a return on investment as a catalyst for investment in the form of profit, It mean that, over time, is expected to increase or to transfer changes in the number of monetary units, It means having a time value of money.*

Valuation models work within certain specified context with estimated parameters reflecting the context used to arrive at expected returns, among the most important of these parameters are the actualization rate and the risk associated with the investment that is ;[14]

- *Required rate of return ; it's the rate at which the future cash flows are actualized to reach a valuation in present value terms, the required return rate is the return expected on various risk class of assets;*

- *Risk of an investment; the level of risk concerned is a key influencing factor on the value.*

The steps in the yield calculations and to find the actualisation rate that will equate the present value of the cash flow to the price of the investment;

- *Step1- select an actualisation rate;*

- *Step2- calculate the present value of the cash flows using the actualization rate selected;*

- *Step3- compare the calculated present value with the price of the investment (bond price) or the required price, adjust the actualization rate and repeat steps 1 to 3, if the present value is not the same as the price you require; otherwise you have found the return to maturity of the investment.*

The use of dividend capitalization models (for example Gordon & Shapiro) provides an alternative of suitable benchmarks for conventional valuation models.

B- Determining the yield (internal rate of return); *the yield is calculated by determining the actualization rate (the expected profit rate) that will make the present value of the cash flow from the investment equal to its price.*

Computing the yield; the yield to maturity is the return expected to receive from future profits plus capital gain, the formula to calculate the yield on any investment is the following relationship;[15]

$$\left[PV = \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \cdots . \frac{D_n}{(1+r)^n} + \frac{LV}{(1+r)^n}\right]$$

Summarized the formula is; $\left[PV = \sum_{t=1}^{n} \frac{D_t}{(1+r)^t} + \frac{LV}{(1+r)^n}\right]$.

Where; PV; Present value; D; dividend in period t;

*n; number of periods; LV**;** Liquidation value of investment (maturity value).*

Solving for (r) will provide the yield or return on the investment.

C-Using capital asset pricing model; *the notion of profit and loss sharing and partnership inherent in Islamic contracts requires that an element of risk is born by all partners and thus the portfolio investment model of Markowitz (1959) is largely acceptable in Islamic finance, and this effectively rules out standard valuation models such as the capital asset pricing model.*[16]

One method to determine the required rate of return when valuing securities in a diversified portfolio is use the CAPM, based on this model the following relationship holds;

The required rate of return = return rate on risk–free securities+ security beta (average return on the market portfolio- return rate on risk–free securities).

Slotting in the symbols we have; $\left[\boldsymbol{k_e = R_f + \beta(k_m - k_f)}\right]$

Where; k_e*; required rate of return;*

R_f*; risk free rate ;* β*; beta coefficient ; km; expected return for ordinary shares in the marke ;*

(k_m-R_f)*; risk premium; represents the average excess return over the risk free rate that investors expect the market to provide for assuming more systematic risk as equity investors.*[17]

Companies with a market beta larger than 1.0 have a higher systematic risk than average and the required rate of return is correspondingly higher, and vice versa.[18]

The CAPM model allows us to determine the relevant actualisation rate to use in actualisation expected cash flows or returns to arrive at the present value.

D-Using weighted average cost of capital; *in the case of companies or projects the cost of capital is logically the weighted average of the costs of the different components of financing employed by the company to fund its financial needs.*

In this model the weights reflect the proportion of the total financing raised from each source or the capital structure of the company;

$$\left[\boldsymbol{WACC} = \sum_{i=1}^{n} \boldsymbol{w_i . c_i}\right]$$

Where; w; weights of each source (i) of financing, c; the cost of each source of financing.

The development of a sovereign Sukuk market has caused a resurgence of interest in the use of the expected rate of profits on Sukuk as a proxy for risk-free rates.[19]

III-Stochastic productivity and feasibility studies of investment in Sukuk

A-Basis for actualisation: *Investment is often productive in the sense of giving back over time a total product larger or more valuable than the invested resources.*

1 – Marginal product of Investment; *There are three fundamental and inter-related characteristics of the net marginal product of investment (MPI) that may be summarized in three* ***Ps****; Protracted, Probabilistic and Positive; protracted in the sense that it can be realised only through time, every real investment starts by using up valuable resources and gives back a stream of benefits spread over several future periods; probabilistic or risky or uncertain in the sense that the value of the MPI over time may be less more or just equal to the resources used up in investment; but its expected value is usually positive, though always risky has on the average a positive net marginal product,*[20] *these characteristics mean that resources received earlier have the opportunity to be invested longer, and hence are potentially more productive on the average.*

2- Optimal locus of investment; *Actualisation by a rate of return is based on the principle of opportunity cost, « A man is earning 10 per cent profit on the average on his invested capital, he is offered the chance to participate in a venture which have the prospect of giving back 130 dinars after three years, on each 100 dinars invested now, He figures that if he keeps 100 dinars invested in his own business for three years, it is expected to grow 110 at the end of the first year, 121 at the end of the second year –by reinvestment 110 and expected rate of return 10 per cent-, and more than 133 at the end of the third year –by reinvestment 121 and expected rate of return 10 per cent-. Based on this method of calculation he rejects the proposed venture on the ground that he expects to make better profit in his own business »*[21].

And he can calculate the present value from any future revenue or cash flows over the time, when ***r*** *represents the investment efficiency.*

Financial opportunities also provide production possibility frontiers, So that the marginal rate of transformation (MRT) of Y_0 into Y_1 can be given by;

$\left(\frac{dY_1}{dY_0} = 1 + r\right)$, *it's the* ***generalisation of Two-period model.***

The rate of return in the financial market can serve as a benchmark for project selection.

A positive investment time preference in the term of Marginal rate of transformation-MRT- (r) equating to positive rate of return is possible to exist resulting from positive bias in future production for the availability of future consumption resulting of real market forces.

Siddiqi's model provides an insight about the investment-saving decisions, his basic contention is that under the alternative pricing mechanism it's the profit-sharing ratio that will guide the allocation decisions, this is permissible as Shari'ah allows the voluntary negotiations of the sharing of profits from the investment in the beginning of Musharakah and Mudarabah contracts.

Let (π) the profit, (I) the level of invested funds, (λ) the sharing ratio, the rate of return is equal $\left[r = \frac{\lambda.\pi}{I}\right]$.[22]

We can use this formula to find the sharing ratio using (r) as required return;

$$\left[\lambda = r.\frac{I}{\pi}\right].$$

B -Average rate of return of Islamic investment; *In the certainty case, When not to reinvest the proceeds be mathematically average:*[23] $\left[R_a = \frac{\sum_{i=1}^{n} R_i}{N}\right]$.

In the case of re-investment returns periodically and at the same rate for the next period, the average is engineered; $\left[R_g = \sqrt[n]{\prod_{i=1}^{n}(1 + R_i)} - 1\right] \dots\dots\dots\dots\dots (*)$

And noted the lack of interest in the calculating of the average yield of the series (as a time structure for the expected return can be considered corresponds to the time structure of interest in traditional economics.

And the calculation of the geometric mean time of return, and is considered the same coefficient of actualization or discount, expressed by the internal rate of return on investment or the marginal efficiency of capital; $\left[R_g = IRR\right]$.[24]

In the case of uncertainty and risk we have to enter φ_i *element into account the previous relationship can be written as follows:*[25] $\left[R_g = \sqrt[n]{\prod_{i=1}^{n}(1 + R_i + \varphi_i)} - 1\right]$

It can be used as a general indicator, and the sum of revenues is;

$$S_r = M_0(R_g) + M_1(R_g) + M_2(R_g) + \cdots \dots M_{n-1}(R_g) = R_g(M_0 + M_1 + \cdots \dots M_{n-1})$$

$$S_r = R_g\left[M_0 + M_0(1 + R_g) + M_0(1 + R_g)^2 + \cdots \dots + M_0(1 + R_g)^{n-1}\right]$$

Where; $M_0 + M_0(1 + R_g) + M_0(1 + R_g)^2 + \cdots \dots + M_0(1 + R_g)^{n-1}$ *the sum of (n) term of geometric sequence with first term* M_0 *and common ratio* $(1 + R_g)$*;*

$$S_r = R_g\left[M_0\frac{(1 + R_g)^n - 1}{R_g}\right] => S_r$$

$$= M_0(1 + R_g)^n - M_0 \boldsymbol{Or}\left[S_r + M_0 = M_n = M_0(1 + R_g)^n\right]$$

And the current expected return on average geometric future returns (case of risk) should be at least equal to the cost of capital or alternative opportunities for investment.

C-Sukuk valuation; *the share value of the flows is dividends on the sakk for future periods campaign function, So is a function of investor expectations of those profits.*

The same concept can be expressed as the value of the investment instrument through the following relationship: $\left[V_0 = \frac{(P.\pi_1)}{(1+r)} + \frac{(P.\pi_2)}{(1+r)^2} + \cdots \ldots \ldots + \frac{(P.\pi_n)}{(1+r)^n} + \frac{D_n}{(1+r)^n}\right]$

Where: P = the rate of participation in the project being financed; Πi = amount of profit realized in the end of each period i;

And;D_n = the liquidation value of participation; r = Return rate equivalent to the rate of profit on the same level of risk alternative invest;

While the participation rate (Pr) can be pre-selected, and the end of the equation is closed and tied the end of the funded project, It is this like a regular bonds, known in the traditional system of positive ones to stock property,[26]They truly offer a legitimate alternative to bonds.

IV- application; Case study from Malaysian bonds and Sukuk market

A-Recent studies on Sukuk and bonds in Malaysia stock market;

There is many several studies attempt to compare Sukuk and conventional bonds in term of their structure, properties and how the market perceives them as different investment alternatives, the results indicated that Sukuk are different and better than conventional bonds from side of yield or risk.[27]

1- risk and return in portfolio management*; This study uses the Dow Jones Citigroup Sukuk Index (DJCSI) as a proxy of the global sukuk market, the sample used in this study is the daily data of the DJCSI from 3 January 2007 until 28 February 2011 (1,079 observations). Data are sourced from the Bloomberg data base.*

The trade-off between risk and return become basic decision in portfolio management. According to modern portfolio theory, the basic strategy to create efficient portfolio is to maximize return for a given risk or to minimize risk for a given level of expected return. Since investors and portfolio managers have certain levels of risk and return expectation, a good forecast of asset prices volatility over the holding period is a good starting point for assessing investment risk.[28]

2- Computation of Sukuk spreads (with risk and return)*; The data for Sukuk spreads are computed from the YTM and government yields.*

Computation of spreads - the dependent variable; *the computation of spreads is based on the last traded yield of the consolidated rating and maturity of corporate sukuk, against the respective Government Investment Issues (GII)*

Sukuk spreads (SS)i,t= Yieldi,t - Yield GII,t.

Where Yield i,t is the consolidated yield of Sukuk with i rating at t-period

Yield GII,t is the consolidated yield of GII at t-period.

Practically the tests show otherwise. Also, the yields of Sukuk instruments are significantly higher than yields of conventional bonds even after controlling issuers, rating quality and tenure in matched samples tests. Finally, Sukuk issuance affects the issuing firms beta risk significantly, which is consistent with capital structure theory.

3- Sukuk yield (internal rate of return) and weighted average cost of capital; *Another study is motivated to investigate and validate the relationship between characteristics of Sukuk issuances to Sukuk yield(internal rate of return) and weighted average cost of capital (WACC) that has been established as a new model.*

WACC indicate more variables (six) were significant; maturity, coupon rate, log size of issuances, producer price index and assets growth. From these result revealed that only three independent variables show significant relation for both dependent such tenure, coupon and producer price index. Indicating that, these three factors or characteristics are important to the issuer and Sukuk-holder to look into details whenever making capital financing decision.[29]

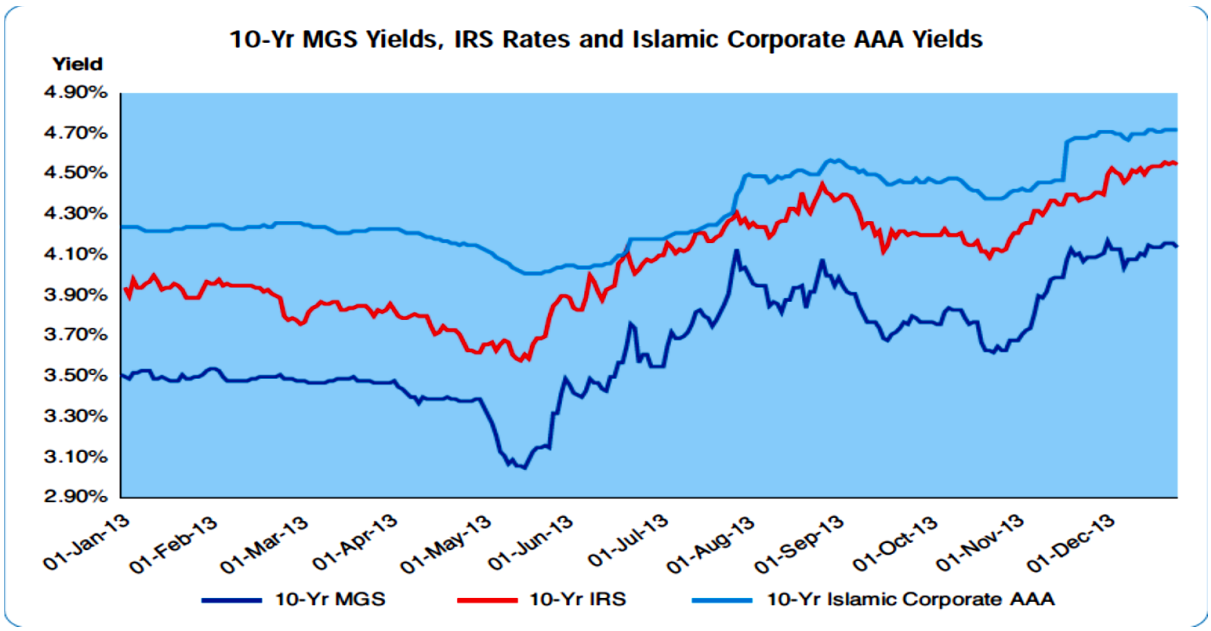
B-Outlook for Malaysian Bonds and Sukuk market

1- ***Quotation and fair value of conventional bonds and sukuk;*** *In Kuala Lumpur stock market, Sukuk are valued using fair value prices quoted by a bond pricing agency (BPA). The fair value of financial assets and liabilities traded in active market are based on quoted market prices at the close of trading on the period end date, Where the manager is of the view that the price quoted by BPA for a specific Sukuk differs from the market price by more than 20 basis points.*[30]

2-Outlook for government, conventional bonds and Sukuk

The following figure shows the returns changes for ten years Sukuk with AAA rating and Malaysian Government Sukuk (MGS) differences returns with Interest Rate Swaps in the year 2013.

Figure 02; Spread rate between Sukuk, Government and Conventional bonds –Year2013-

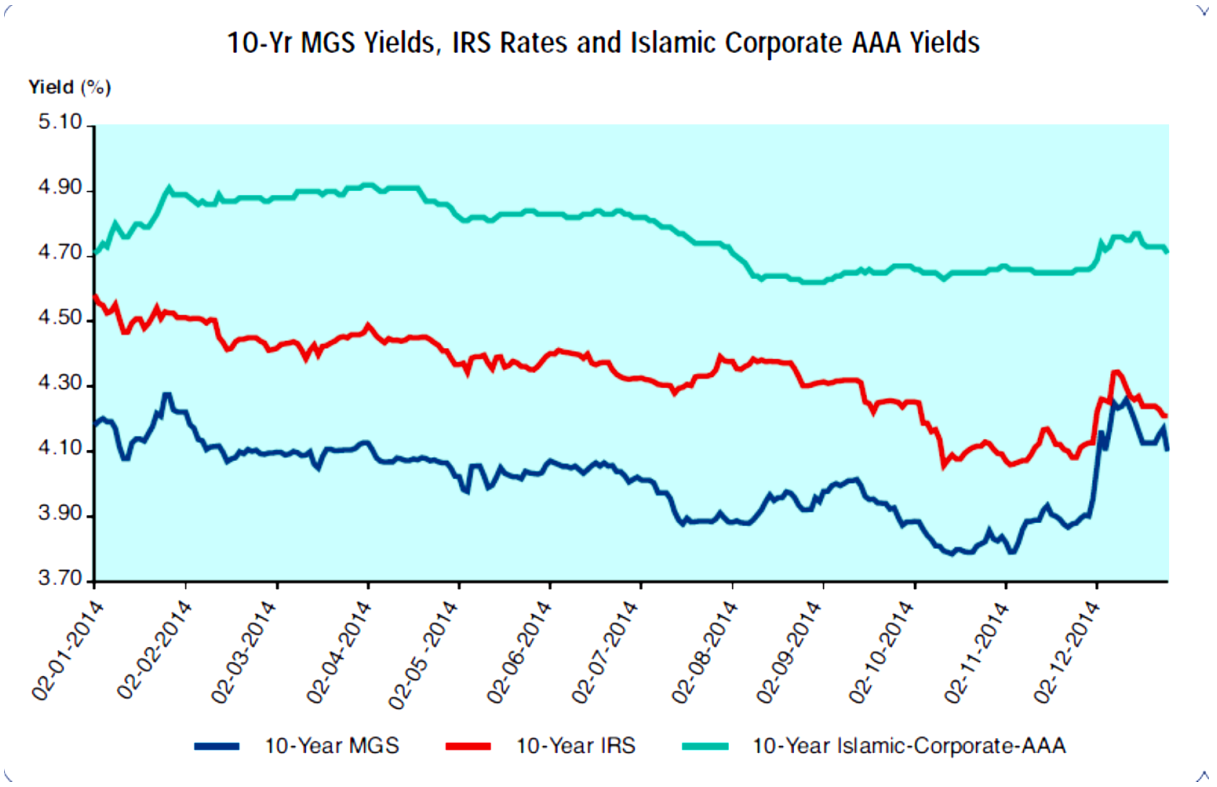


Source; *BPAM Bond Pricing Agency Malaysia, 2013 Malaysia bond and Sukuk almanac, Kuala Lumpur,2013 P21 .available at , www.bpam.com.my.*

The uptrends observed in MGS yields as well as the Interest Rate Swaps (IRS), a tool which is widely used to hedge or speculate on future interest rate movements, suggested heightened expectations of inflationary pressures and a potential interest rate hike by Bank Negara Malaysia on the back of a series of subsidy rationalization measures undertaken by the government.[31]

The following figure shows the returns changes for ten years Sukuk with AAA rating and Malaysian Government Sukuk (MGS) differences returns with Interest Rate Swaps in 2014.

Figure 03; Spread rate between Sukuk and government and conventional bonds – Year2014-



Source; *BPAM Bond Pricing Agency Malaysia, 2014 Malaysia bond and Sukuk almanac, Kuala Lumpur,2013 P19..available at , www.bpam.com.my.*

The 10-years Interest Rate Swap (IRS), which represents investors' expectations of future interest movements, has followed the general downward trend as seen in the 10-yr MGS throughout the year. During the month of December when oil prices plummeted, the spread between 10-yr MGS and its IRS counterpart tightened as investors rushed to lighten up their sovereign bond holdings.

Over in the Private Debt Securities (PDS) space, the 10-yr Islamic Corporate AAA yield moved in a tighter range of 4.62% to 4.92% throughout the year. It is also worth to note that the 10-yr Islamic Corporate AAA curve has now retreated to the level it began the year with, at 4.72%.[32]

The curves support the popularity of the Sukuk though yield is less due to their less risky nature, Mean yield of Sukuk and that of conventional bond are significantly different

C- Sukuk pricing in practical methods; *Sukuk, especially sovereign ones, are rated and valued by International Rating Agencies after having met the criteria for Shari'ah and AAOIFI compliancy. In this respect, reference benchmarking for credit risk has gone a long way in benefiting the Malaysian Sukuk market, according to Rating Agency Malaysia Berhad (RAM),this is because the rating of Islamic debt instruments in Malaysia in a similar manner to the way conventional instruments are rated has been made compulsory since 1992.*

However, in terms of issuance and pricing, there are some differences due to the collateralization of Sukuk. In addition, Sukuk investors' attachment to the segment of the bond market that meets Shari'ah compliancy necessitates identification of Sukuk with Market Segmentation theory, which is one form of Expectation Theory.

1- MARC methodology in Sukuk and bonds valuation; *There are special judgments and significant methodologies used by the Malaysian agency in valuation any particular Sukuk to be issued. MARC outlined these analytical components in rating Sukuk transaction;*[33]

a*. Analysis of the basic structure of the Sukuk: MARC's evaluation of a Sukuk structure revolves around its structuring intent; a significant impact on the risk profile of the Sukuk and determines the valuation methodology to be used (asset-backed methodology).*

b. *Assessment of key transaction parties: MARC considers the roles of key participants in the transaction, as well as the credit quality of each participant and ability to perform their roles, and the corresponding implications of such for the risk profile of the Sukuk.*

c. *Asset and cash flow analysis: The most important driver of the ratings assigned to "asset-backed" and non-recourse or limited recourse project finance Sukuk.*

d. *Assessment of credit enhancement and structural protections; such as reserve accounts, payment waterfalls and collateral value in addition to external credit support which may be provided by the originator/obligor or third party guarantor(s).*

e. *Legal analysis; in Sukuk structures involving a SPV issuer, MARC will consider the bankruptcy remoteness of the SPV and the limitations on the business activities of the SPV.*

Depending on the cash flow characteristics of the asset, the Sukuk may have to be structured as a variable-income instrument with the flexibility to defer returns and absorb losses as dictated by the performance of the asset(s) or project.[34]

2- Pricing mechanism for bonds and Sukuk –BPAgency- [35] *BPA valuation approved by the Securities Commission (SC) may revitalize the bond market using mark-to-market prices as benchmark by publicly announcing them Marking-to-market system provide strategy alternatives to traditional hold-to-maturity strategies.*

*Mark-to-market pricing on previously issued corporate bonds can promote new corporate bond issues by functioning as benchmarks for primary level pricing***.**

The bond pricing process is transparent and uses global standard pricing models, and according to BPA the models are customized to meet the unique needs of the Malaysian market.[36]

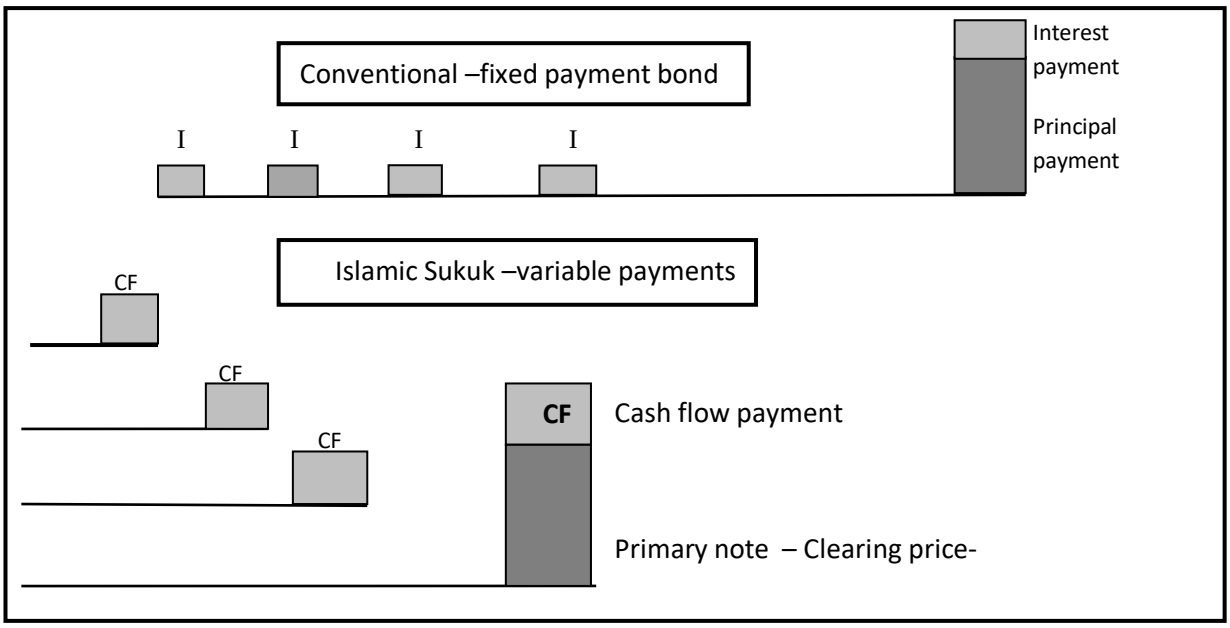
$$\left[P_0 = \sum_{k=1}^{n} \frac{\frac{c}{100}\times\frac{F}{f}}{\left(1+\frac{y}{100}\times\frac{1}{f}\right)^{\left(k-1+\bar{D}/D\right)}} + \frac{F}{\left(1+\frac{y}{100}\times\frac{1}{f}\right)^{\left(n-1+\bar{D}/D\right)}} - AI\right] \quad \textit{Where;}$$

Notation	***Descriptions***
f	*Coupon payment frequency in a year*
c	*Coupon rate (cash flow rate -in Islamic model-)*
F	*Face amount*
y	*Yield=spot rate + individual spread*
AI	*Accrued interest (not applicable in islamic model)*
D	*Number of days in one regular coupon period*
$\bar{D}$	*Number of days between the value date and the next coupon date*
n	*Last coupon period*

Source; *Meor Amri Meor Ayob; Pricing Mechanism For Sukuk And Bond Structures - Malaysia's First Bond Pricing Agency- Thomson Reuters.*

Islamic Valuation method of Sukuk are different to conventional bonds in market practice.

Figure04; Conventional and Sukuk cash-flows in BPA view;



Source; *Meor Amri Meor Ayob; Pricing Mechanism For Sukuk And Bond Structures - Malaysia's First Bond Pricing Agency- Thomson Reuters.*

Islamic and conventional bonds are fundamentally different in both structure and thus valuation Islamic, Rather than relying on the performance of the underlying assets ,Islamic Sukuk are currently priced as per their conventional counterparts.

3- Computations of profits using Ijarah and musharakah mutanaqesah princples ; -Bank Muamalat-[37]

- ***Ijarah Principle;*** *Under the ijarah principle the mathematical formula applied is adopted from the one used by Bank Muamalat with the assumption that the investor holds the*

sukuk until maturity date and the first payment for the profit is paid at the end of the first period.

The mathematical formulae indicated below are needed for the computation of profit obtained under the Ijarah principle.[38]

$$[\boldsymbol{Profit = \ Proceed\ at\ future\ value - Proceed\ at\ present\ value}]$$

Where;

1- $$\left[Proceed\ at\ Present\ value = \frac{Redemption\ value \times Price}{100}\right]$$

And; $$\left[Price = 100\left(1+\frac{r}{200}\right)^{-t} + \sum_{k=1}^{t}\frac{c}{2}\left(1+\frac{r}{200}\right)^{-k}\right]$$

2- $$\left[Proceed\ at\ future\ value = \frac{Redemption\ value \times Future\ value}{100}\right]$$

And ; $$\left[Future\ value = \sum_{k=1}^{t-1}\frac{c}{2}\left(1+\frac{r}{200}\right)^{k-1} + 100\right]$$

Where; ***c*** *; Coupon rate; r; Yield to maturity rate; t; Periodic Payment number;*

n; Number of semi-annual lease payments between the issue date and maturity date

The value r in the formula for price and future value is the yield to maturity rate (YTM) which varies from year to year and it is determined by Bank Negara according to the rating given to a particular Sukuk. Since the profit payments are made semi-annually, the YTM for the second period for each year is taken to be the average of the YTM for the previous year and the current year.

-***Musharakah Mutanaqisah Model;*** *The formula to determine the investor's equity and profit after t periods under the musharakah mutanaqisah model was proposed with profit sharing ratio of 90% : 10% and the price of sukuk is.* [39]

The amount of accumulated profit received by investor at the end of t period is;

$U_t = k\left\{100[(1+r)^t - 1] - B\left(\frac{(1+r)^t-1}{r} - t\right)\right\}$*Where;*

$$B = \left\{\frac{100k[(1+r)^{10}-1]+100}{10(1-k)+k\frac{(1+r)^{10}-1}{r}}\right\}$$

Also it can be calculate the amount of semi-annual profit for investor at the end of (t-1)period;

$$C_t = rk\left[100(1+r)^{t-1} - B\frac{(1+r)^t - 1}{r}\right]$$

k= Profit sharing rate as agreed by investor and issuer;

r= profit rate on single semi-annual payment;

B=the amount of periodic payment by the issuer to the investor;

And for example the calculation of Sukuk profit under this model at the end of the first period.

$$B = \left\{\frac{100\times0.9\left[(1+0.045)^{10}-1\right]+100}{10(1-0.9)+0.9\frac{(1+0.045)^{10}-1}{0.045}}\right\} = \frac{90(0.552969421)+100}{1+11.05938843} = 12.4191u.$$

$$C_t = (0.045)(0.9)\left[100(1+0.045)^{1-1} - 12.4191\frac{(1+0.045)^{1-1}-1}{0.045} = 0.0405(100-0)\right.$$
$$\left. = 4.05u\right]$$

$$U_t = 0.9\left\{100[(1+0.045)^1 - 1] - 12.4191\left(\frac{(1+0.045)^1-1}{0.045} - 1\right)\right\} = 0.9(100)(0.045) - 0$$
$$= 4.05u$$

D- Sukuk's Portfolio versus conventional and all bond index; *The Thomson Reuters BPA Malaysia All Bond Index series covers the Malaysia ringgit denominated, long term investment graded conventional and Islamic bonds as 31 Dec 2014 ,the index consisted of 1045 bonds with a total of capitalization of MYR 832 billion (around 260 billion USD).*

Index constituents undergo calculation, review and rebalancing on a daily basis, The index history is backfilled to 01 Jan 2007.

The Performance Attribution Report helps to determine how the asset allocation and selection of securities affects the portfolio's performance when compared to the performance of the Total Return Bond Pricing Agency Malaysia (TR BPAM) All Bond Index.

Performance is measured through the following formula; [40]

$$Allocation\ effect$$
$$= Subindex\ contribution\ to\ weight * Subindex\ contribution\ to\ return$$

$$Allocation\ effect = \left(\frac{weight\ of\ Subindex}{weight\ of\ main\ index}\right) * \left(\frac{return\ of\ Subindex}{return\ of\ main\ index}\right)$$

And we can calculate the performance of Sub-indicators for the month of April 2015:

Table01: *performance of All bonds; Conventional bonds and Sukuk portfolios*

Index Segment	***Monthly Index return***	***Market Capitalization RM-Mrd***	***Allocation effect***
TR BPM ALL BOND IDX	*0.65*	*878.71*	-
TR BPM GOV ALL BND IDX	*0.61*	*565.57*	*0.6*
TR BPM CORP ALL BND IDX	*0.76*	*137.13*	*0.18*
TR BPM CONV BOND IDX	*0.62*	*389.39*	*0.42*
TR BPM GOV BND IDX	*0.61*	*343.31*	*0.37*
TR BPM CORP BND IDX	*0.75*	*14.91*	*0.02*
TR BPM SUKUK IDX	*0.69*	*489.31*	*0.59*
TR BPM GOV SUKUK IDX	*0.59*	*222.26*	*0.23*
TR BPM CORP SUKUK IDX	*0.77*	*122.22*	*0.16*

Source: *Thomson Reuters BPAM Bond Pricing Agency Malaysia, All Bond Index Attribution Analysis, Monthly report Kuala Lumpur, May 2015 P03. available at , www.bpam.com.my.*

$$[Ex01] = \ Allocation\ effect(TR\ BPM\ GOV\ ALL\ BOND\ IDX) = \left(\frac{565.57}{878.71}\right) * \left(\frac{0.61}{0.65}\right)$$
$$= 0.6436 * 0.9385 = 0.604$$

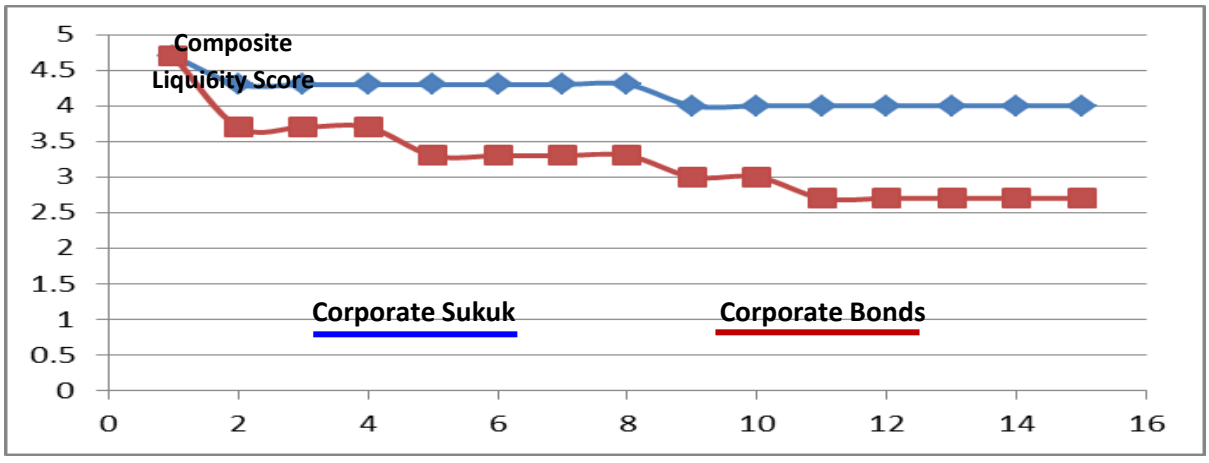
$$[Ex02] = \ Allocation\ effect(TR\ BPM\ CONV\ \ BOND\ IDX) = \left(\frac{389.39}{878.71}\right) * \left(\frac{0.62}{0.65}\right)$$
$$= 0.4431 * 0.9538 = 0.423$$

$$[Ex03] = \ Allocation\ effect(TR\ BPM\ SUKUK\ IDX) = \left(\frac{489.31}{878.71}\right) * \left(\frac{0.69}{0.65}\right)$$
$$= 0.5568 * 1.06 = 0.59$$

First notes for the monthly returns of the Sub-indicators that returns of sukuk's indicators generally higher than the returns corresponding indicators of traditional bond indices except government sukuk and bonds, while the main index is the weighted average returns Sub-indices, the same observation for the previous months (September, November, December) in 2014, and revenue continues to rise from month to month except for the months of December 2014 and January 2015 (tables in Appendix) due to a sharp and sudden drop in oil prices, as shown in Figure pro-development overall index for bonds and sukuk.

About risks by composite liquidity score, the Islamic Sukuk better than the traditional, as illustrated by the study of Malaysian bond pricing agency (BPAM), with a reference date of 27 March 2015 and a month look-back period, the top 15 Sukuk facilities exhibited better liquidity compared to a similar number of conventional bonds, as it is shown in the figure.

Figure05; composite liquidity score Sukuk versus conventional bonds



Source; *Meor Amri Meor Ayob: Fact File 100: Trade liquidity of Sukuk versus Bonds, Bond Pricing Agency Malaysia (BPA). Available at;*

*www.**bpa**m.com.my/.../**file**download_1.asp?**file**.../**BPA**M%20Miscellaneo.*

A Composite Liquidity Score can than be obtained (by taking an equally weighted sum of the said factors).[41]

Conclusion

A modern financial system can be designed without the need for an ex-ante, determined, positive, nominal fixed-interest rate. Indeed, it was shown that there was no satisfactory explanation for the existence of such a rate. The basic proposition of Islamic finance was that the return on capital would be determined ex-post, and that the magnitude of that return was determined on the basis of the return to the economic activity in which the

funds were employed, It was also the expected rate of return, and income, which determined savings.

Sukuk provide returns to investors in the form of cash flows originating from these assets. Since size and timing of these cash flows cannot be predetermined with certainty and, therefore, are risky, they are distinctively different from the Sharia'a definition of Riba.

Sukuk have confirmed their viability as an alternative means to mobilize medium to long-term savings and investments from a huge investor base, Sukuk have profitability for the shareholders such as regular periodic income and liquidity instruments that tradable in the secondary market.

For all forms of securities, the main conclusions are: Sukuk securities should not be priced the same way as conventional bonds, which is highlighted by the study and most of the previous studies and with various methodologies, on the case of the Malaysian bond and Sukuk market.

Appendix

Monthly Index return, Market Capitalization ,Allocation effect –Malaysian Bonds and Sukuk Market-

Total Return Bond Pricing Agency Malaysia (TR BPAM)[All Bond Index, Government; quasi government; Financial; Corporation guaranteed; Corporation] Bonds and Sukuk index

April 2015

Index Segment	***Monthly Index return***	***Market Capitalization-RM-Mrd***	***Allocation effect***
TR BPM ALL BOND IDX	*0.65*	*878.71*	-
TR BPM GOV ALL BND IDX	*0.61*	*565.57*	*0.6*
TR BPM QUASI GOV ALL BND IDX	*0.73*	*127.18*	*0.16*
TR BPM FIN ALL BND IDX	*0.57*	*18.87*	*0.02*
TR ALL CORP GUAR ALL BND IDX	*0.83*	*29.96*	*0.04*
TR BPM CORP ALL BND IDX	*0.76*	*137.13*	*0.18*
TR BPM CONV BOND IDX	*0.62*	*389.39*	*0.42*
TR BPM GOV BND IDX	*0.61*	*343.31*	*0.37*
TR BPM QUASI GOV BND IDX	*0.56*	*11.27*	*0.01*
TR BPM FIN BND IDX	*0.52*	*09.73*	*0.01*
TR BPM CORP GUAR BND IDX	*0.81*	*10.17*	*0.01*
TR BPM CORP BND IDX	*0.75*	*14.91*	*0.02*
TR BPM SUKUK IDX	*0.69*	*489.31*	*0.59*
TR BPM GOV SUKUK IDX	*0.59*	*222.26*	*0.23*
TR BPM QUASI GOV SUKUK IDX	*0.74*	*115.91*	*0.15*
TR BPM FIN SUKUK IDX	*0.61*	*09.14*	*0.01*
TR BPM CORP GUAR SUKUK IDX	*0.84*	*19.78*	*0.03*
TR BPM CORP SUKUK IDX	*0.77*	*122.22*	*0.16*

Dec2014

Index Segment	***Monthly Index return***	***Market Capitalisation-RM-Mrd***	***Allocation effect***
TR BPM ALL BOND IDX	*-0.23*	*832.33*	-
TR BPM GOV ALL BND IDX	*-0.4*	*526.56*	*1.1*
TR BPM QUASI GOV ALL BND IDX	*-0.03*	*122.97*	*0.02*

TR BPM FIN ALL BND IDX	*0.31*	*15.89*	*-0.03*
TR ALL CORP GUAR ALL BND IDX	*0.32*	*31.00*	*-0.05*
TR BPM CORP ALL BND IDX	*0.13*	*135.9*	*-0.09*
TR BPM CONV BOND IDX	*-0.52*	*368.61*	*1.00*
TR BPM GOV BND IDX	*-0.62*	*321.85*	*1.04*
TR BPM QUASI GOV BND IDX	*0.25*	*12.3*	*-0.02*
TR BPM FIN BND IDX	*0.29*	*8.78*	*-0.01*
TR BPM CORP GUAR BND IDX	*0.20*	*10.36*	*-0.01*
TR BPM CORP BND IDX	*0.13*	*15.31*	*-0.01*
TR BPM SUKUK IDX	*0.01*	*463.72*	*-0.02*
TR BPM GOV SUKUK IDX	*-0.07*	*204.71*	*0.07*
TR BPM QUASI GOV SUKUK IDX	*-0.06*	*110.67*	*0.03*
TR BPM FIN SUKUK IDX	*0.32*	*7.11*	*-0.01*
TR BPM CORP GUAR SUKUK IDX	*0.38*	*20.64*	*-0.04*
TR BPM CORP SUKUK IDX	*0.14*	*120.59*	*-0.09*

Nov2014

Index Segment	***Monthly Index return***	***Market Capitalisation-RM-Mrd***	***Allocation effect***
TR BPM ALL BOND IDX	*0.32*	*828.89*	*-*
TR BPM GOV ALL BND IDX	*0.20*	*525.23*	*0.40*
TR BPM QUASI GOV ALL BND IDX	*0.76*	*122.62*	*0.35*
TR BPM FIN ALL BND IDX	*0.33*	*17.32*	*0.02*
TR ALL CORP GUAR ALL BND IDX	*0.27*	*29.84*	*0.03*
TR BPM CORP ALL BND IDX	*0.38*	*133.87*	*0.19*
TR BPM CONV BOND IDX	*0.16*	*366.41*	*0.22*
TR BPM GOV BND IDX	*0.13*	*321*	*0.16*
TR BPM QUASI GOV BND IDX	*0.32*	*12.27*	*0.01*
TR BPM FIN BND IDX	*0.36*	*10.16*	*0.01*
TR BPM CORP GUAR BND IDX	*0.35*	*9.76*	*0.01*
TR BPM CORP BND IDX	*0.36*	*13.22*	*0.02*
TR BPM SUKUK IDX	*0.44*	*462.48*	*0.77*
TR BPM GOV SUKUK IDX	*0.31*	*204.24*	*0.24*
TR BPM QUASI GOV SUKUK IDX	*0.80*	*110.36*	*0.33*
TR BPM FIN SUKUK IDX	*0.31*	*7.16*	*0.01*
TR BPM CORP GUAR SUKUK IDX	*0.24*	*20.07*	*0.02*
TR BPM CORP SUKUK IDX	*0.38*	*120.65*	*0.17*

Sep2014

Index Segment	***Monthly Index return***	***Market Capitalisation-RM-Mrd***	***Allocation effect***
TR BPM ALL BOND IDX	*0.25*	*815.14*	*-*
TR BPM GOV ALL BND IDX	*0.26*	*520.43*	*0.66*
TR BPM QUASI GOV ALL BND IDX	*0.04*	*118.91*	*0.02*
TR BPM FIN ALL BND IDX	*0.36*	*16.87*	*0.03*
TR ALL CORP GUAR ALL BND IDX	*0.36*	*29.93*	*0.05*

TR BPM CORP ALL BND IDX	*0.36*	*129*	*0.23*
TR BPM CONV BOND IDX	*0.31*	*367.43*	*0.56*
TR BPM GOV BND IDX	*0.31*	*322.67*	*0.49*
TR BPM QUASI GOV BND IDX	*0.24*	*12.97*	*0.02*
TR BPM FIN BND IDX	*0.34*	*10.48*	*0.02*
TR BPM CORP GUAR BND IDX	*0.32*	*10.03*	*0.02*
TR BPM CORP BND IDX	*0.33*	*11.29*	*0.02*
TR BPM SUKUK IDX	*0.21*	*447.71*	*0.46*
TR BPM GOV SUKUK IDX	*0.20*	*197.76*	*0.19*
TR BPM QUASI GOV SUKUK IDX	*0.01*	*105.94*	*0.01*
TR BPM FIN SUKUK IDX	*0.39*	*9.39*	*0.01*
TR BPM CORP GUAR SUKUK IDX	*0.37*	*19.90*	*0.04*
TR BPM CORP SUKUK IDX	*0.36*	*117.71*	*0.21*

References and Notes ;

[1] - Tahmoures Afshar, **Compare and Contrast Sukuk (Islamic Bonds) with Conventional Bonds, Are they Compatible?,**The Journal of Global Business Management Volume;9,N;01 Feb2013.PP;44-45 http://www.jgbm.org/page/5%20Tahmoures%20A%20%20Afshar.pdf .

[2]- Zamir Iqbal, Abbas Mirakhor; **An introduction to Islamic finance; theory and practice**, 2nd edition, john willey and sons (asia), singapore 2011.P11.

[3]-Mansur Mannan**; Islamic finance; a guide for International Business and Investment**, GMB Global Market Briefings and institute of Islamic finance and insurance, London UK, P106.
Available at**;** www.globalmarketbriefings.com.

[4]- Mohamed Ariff, Munawar Iqbal, Shamsher Mohamad; **The Islamic Debt Market for Sukuk Securities, The theory and practice of profit sharing investment,** Edward Elgar, Glos, UK, 2012. PP.19-20.

[5] - Christophe Godlewski, Rima Turk-ariss, Laurent Weill; **Are islamic certificates special?evidence on the post-announcement performance of sukuk issues**, institut de finance de strasbourg, labortoire de recherche en gestion, 2010, PP6-8. Available at; ifs.u-strasbg.fr/large

[6] - Meor amri Bin meor Ayob; **Bond investment: predicting credit risk changes based on issuer business profile: a general filtering technique;** partial fulfillment of the requirement for the degree of master of business administation; IIUM, Malaysia, 1999.P

-Frank reilly; Keith brown: **An introduction to security valuation, Investment analysis and portfolio management,** 5th edition, Dryden press.1997.

[7] - Masudul Alam Choudhry**; rate of capitalisation in valuation models in an islamic economy**, international centre for research in islamic economics king abdulaziz university,Jeddah and institute of policy studies Islamabad, 1983. PP.296-298. international islamic university malaysia, islamic economic collection,doc 554.

[8] - Khalil Ahmed; **sukuk, definition , structure and accounting issues;** Munich Personal RePEc Archive ; MPRA Paper No. 33675, posted 25. September 2011, Online at http://mpra.ub.uni-muenchen.de/33675/.PP;5-6.

[9]**-Kuwait finance house**; Islamic finance in asia, development, growth and opportunities, research paper, 2013, PP; 62-63. kuala lumpur, www.kfhresearch.com.

[10]- Jaseem ahmed, Harinder kohli; **Islamic finance ; Writings of V. Sundararajan**, SAGE PublicationsNew Delhi India2011.P40.

[11]- Zamir Iqbal, Abbas Mirakhor; **Opcit**; PP294-295.

[12]- Ibid; P296.

[13]- Ravindran Ramasamy, Shanmugam Munisamy, Mohd Hanif Mohd Helmi; **Relative Risk Of Islamic Sukuk Over Government And Conventional Bonds**, Global Journal of Management and Business Research, Volume 11 Issue 6 Version 1.0 May 2011, Global Journals Inc. (USA).

[14] - Securities Commission Malaysia, **islamic capital market; valuation of securities,** LexisNexis Malaysia 2009.PP;96-97.

[15] - Ibid.

[16] - Bruce Hearn, Jenifer Piesse, Roger Strange; **Overcomingfinancing constraintsin an emerging islamic market: Evidence from the sudan telecommunications company.**King's College LondonDepartment of Management Research paper: 52 -2008. P14.

[17] - Systematic risk is defined as the risk inherent in an investment that related to movements in the market which cannot diversified away.
[18] - Securities Commission Malaysia**, Opcit**.P136.
[19] - Bruce Hearn, Jenifer Piesse , Roger Strange; **OpCit**.P15.
[20] - Anas Zarqa; **An islamic perspective of the economics of the discounting in project evaluation**; international center for research in islamic economics, king Abdulaziz university, Jeddah, 1983, P;210.
[21] - Anas Zarqa;**Opcit.**P P; 214-223.
[22]- Waqar Massod Khan; **saving and investment in an interest-free economy**, Islamic research and training institute, Islamic development bank, Jeddah, 1992, P279.
- Volker Nienhaus: **Development impact for Islamic financial institutions**; international scientific conference about economic policy from Islamic view, Setif university, Islamic Institute for Research and Training, 14-20 May1991.
[23] -Pierre Vernimmen, Pascal Quiry, Maurizio Dillaccio, Yann Le Fur, Antonio Salvi; **Corporate finance: theory and practice**;2nd edition; John Wiley & Sons; West Sussex.UK.2009.P474.
[24] - IRR: Internal rate of Return
-Bill Rees**; Financial Analysis;** BPCC Wheatons; Exester; UK; 1990.P215.
[25] - Alice Lee, jhon Lee, Cheng Lee; **Financial Analysis: Planing & forcasting; Theory & application**: world scientific 2nd editon 2009; Singapore.p420.
[26] -Mohammed Saleh El-hennawi; **ProposedIslamiccertificates to mobilize financial resources**, Islamiceconomic studies, Islamic Institute for Research andtraining-Islamic Development Bank, Jeddah. Vol 01-01. 1993, P73
[27] - Fadma El Mosaid, RachidBoutti**; Sukuk and Bond Performance in Malaysia**, International Journal of Economics and Finance; Published by Canadian Center of Science and Education.Vol. 6, No. 2; 2014.P226.
[28]- SulistyaRusgianto ,Nursilah Ahmad; **Volatility Behavior of Sukuk Market: An Empirical Analysis of the Dow Jones Citigroup Sukuk Index**; Middle-East Journal of Scientific Research 13 (Research in Contemporary Islamic Finance and Wealth Management): 2013 ; P93.
[29] - NorizaBintiMohdSaad,and others, **Opcit**.P53.
[30]- Eastspring investment, interim report, for the financial period ended march 2014, kuala lumpur, **OpCit**,P29. www.eastspringinvestments.co.my.
[31]- BPAM Bond Pricing Agency Malaysia, **2013 malaysia bond and sukuk almanac**, Kuala Lumpur,2013 P21.availble at , www.bpam.com.my.
[32]- BPAM Bond Pricing Agency Malaysia,**2014 malaysia bond and sukuk almanac**, Kuala Lumpur,2014 P20.availble at , www.bpam.com.my.
[33]- Nurasyikin Mohd Noor,Shahida Shahimi; **Credit Risk Management for Sukuk: A Case Study of Debt-Based Sukuk**, PROSIDING PERKEM VIII, JILID 3 (2013) , PP; 1263-1264.
[34]- Milly Leong, Hafizan Haron**; Rating approach to sukuk: A MARC perspective**; Malaysian Rating Corporation –MARC-,2012. also available at ; www.marc.com.my.
[35] -Meor Amri Meor Ayob; **Pricing Mechanism For Sukuk And Bond Structures - Malaysia's First Bond Pricing Agency- Thomson Reuters.**
[36] - Ibid.
[37]- Noor Zaini Yasok and Mawarliza Mohamad Zakaria**; Analysis of Profits Obtained from *Sukuk*Investment using *Ijarah*and *Musyarakah*Mutanaqisah Concepts,** Menemui Matematik (Discovering Mathematics); Vol. 32, No. 2: 29-31 (2010) .
[38] - Thomson Reuters BPAM Bond Pricing Agency Malaysia, All Bond Index Attribution Analysis, Monthly report Kuala Lumpur, May 2015 P03. available at , www.bpam.com.my.
[39] - Ibid.
[40] - Data in the Appendix: **For more information and data:** www.bpam.com.my**;**
http://financial.thomsonreuters.com/indice
[41]- Meor Amri Meor Ayob: Fact File 100: **Trade liquidity of Sukuk versus Bonds**, Bond Pricing Agency Malaysia (BPA).- The Fact Files are a series of short publications by Bond Pricing Agency Malaysia highlighting interesting facts and information regarding the bond and Sukuk markets as well as on the subject of valuation.