

Term Structure
of Profit Rates
of *Sukuk*

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MATLAB Stochastic Simulation

By

Ganiyat Adejoke Adesina-Uthman

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To my parents, dead and living.

To my love, Ibrahim.

To all my family members.

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LIST OF ABBREVIATIONS

AAOIFI	Auditing and Accounting Organization of Islamic Financial Institutions
AFIB	Alternative Financing Investment Bonds
ATSMs	Affine Term Structure Models
BBA	<i>Bai Bithaman Ajil</i>
BNM	Bank Negara Malaysia
BMA	Bahrain Monetary Agency
BDT	Black, Derman and Toy
CIIB	Citi Islamic Investment Bank
CIR	Cox, Ingersoll and Ross
CPI	Consumer Price Index
DSU	Deficit Spending Unit
EH	Expectation Hypothesis
EURIBOR	European Union Inter-Bank Offer Rate
FPP	Forward Premium Puzzle
GCC	Gulf Cooperation Council
HBP	Home-Biased Puzzle
HPR	Holding Period Returns
HJM	Heath, Jarrow and Morton model
ICM	Islamic Capital Market
IDB	Islamic Development Bank
IFIS	Islamic Finance Information Service
IFS	Islamic Financial System
IFMs	Islamic Financial Markets
IIFM	International Islamic Financial Market
IMF	International Monetary Funds
LDCs	Less-Developed Countries
LIBOR	London Inter-Bank Offer Rates
MST	Market Segmentation Theory
MATLAB	Mathematics Laboratory
MENA	Middle East and North Africa
M-DTSMs	Macro-Dynamic Term Structure Models
MITB	Malaysia Islamic Treasury Bill
MYR	Malaysian Ringgit
MSC	Malaysian Security Commission

MTFC	<i>Musharakah</i> Term Financing Certificate
NPLs	Non-Performing Loans
OIC	Organization of Islamic Conference
OLS	Ordinary Least Square
PAB	Philippine Amanah Bank
PET	Pure Expectation Theory
PDE	Partial Derivative Equation
PDS	Private Debt Securities
PHT	Preferred Habitat Theory
PLS	Profit and Loss-Sharing
RAM	Rating Agency Malaysia
SCA	<i>Shari'ah</i> Complaint Assets
SPV	Special Purpose Vehicle
SAW	Salallahu Alaey Wasalam
SSU	Surplus Spending Unit
SIA	Security Industry Association
UIP	Uncovered Interest rate Parity
U.K.	United Kingdom
USD	U.S. Dollar
VaR	Value at Risk
YTM	Yield-To-maturity

CHAPTER ONE

INTRODUCTION

1.0 Introduction to Term Structure

Securities such as bonds have the cash flow and pay-off on them dependent on the interest rates because their values are influenced by the interest rate in the financial market. Interest rates have a positive impact on the required return on bond investments and the bond prices are inversely related to yield changes. Therefore, there is the need for valuation of these securities to ascertain their fair pricing and also for other reasons such as good portfolio management, risk management, business environment, uncertainty and speculations, etc.

This has led to different valuation models that incorporate stochastic movement of interest rates. Thus, stochasticity of interest rates in any valuation model has to be correctly modeled. Bond price and yield are functions of time to maturity; state variable, which refers to the instantaneous interest rates; and other model parameters, such as inflation and growth. Bonds are priced using the cash flow generated by assets, their maturity value and their yield. The yield is employed as a discount factor to determine the price. Theoretically, bond price fluctuates with changes in the interest rate of an economy.

Therefore, the term, “structure of interest rate of bonds” is dependent on the maturity of the bonds and its yields. A graphical depiction of the relationship between the YTM and term-to-maturity of bonds with the same credit risk but different term-to-maturity is referred to as the “yield curve”. Studying the yield curve assists both lenders and borrowers in making correct expectations about the direction and quantum of change in the yield and therefore the price of bonds that facilitate investors’ investment decisions. Lenders that lend on a short term basis tend to worry about reinvestment rate after maturity, while those that lend on a long term basis are faced with the risk of uncertainty in terms of liquidation value.

In addition, borrowers who borrow short term are faced with the risk of higher refinancing in the future, while those who borrow long term face the risk of locking in at a higher rate. Hence, the yield curve is important to market players. With the yield curve, market players can see possible various rates of returns and investments in the future that can be locked in at the present. Also, with the different types of yield curves (detailed in Chapter Three), investors can follow government economic policy trends and the expected direction of future interest rates. The change of yield to maturity of a set of bonds of similar characteristics over a period of time is called the term structure of interest rates, which when plotted on a graph becomes the yield curve.

Term structure theory has attracted much attention from a theoretical as well as practical point of view by investors and market players. Therefore, several approaches for pricing interest rate bonds and studying the performance of bonds' yields as they approach maturity have been developed. However, no particular model can be regarded as the best in explaining and solving the term structure problem.

The models range from one-factor models such as the Vasicek model (1977) and Cox, Ingersoll and Ross (CIR 1981); CIR (1985), Hull-White (1996); the Ho and Lee (1986) model; Fama and Bliss (1987), and the Heath, Jarrow and Morton model (1992), to no-arbitrage models of two-factor and multi-factor models. An example of a two-factor model is Brennan and Schwartz (1979), while an example of a multi-factor model includes Dynamic Term Structure Models (DTSMs). A leading DTSM is the Affine Term Structure Model (ATSM), introduced by Duffie and Pan (1996).

Furthermore, most of the literatures on term structure are on developed economies, where liquidity and the level of development in these markets allows them to empirically validate the theory. Relatively, not much has been documented on this issue in developing economies and this book fills the gap in the literature by not only studying the term structure of Malaysian *Sukuk* bonds but also enriching the term structure literature with an analysis of a nascent Islamic financial instrument, the *Sukuk*. Hence, Chapter Three contains, among others, detailed findings on term structure in developed and developing countries. Arbitrage and no-arbitrage single and multi-factor models are also discussed. It should be noted that all these models were developed to value conventional bonds and other securities with similar characteristics to conventional bonds. This research's focus is

on *Sukuk* (Islamic bonds), which are nascent instruments in the Islamic financial market and the international financial market.

Conventional bonds have established a strong hold in local and international financial markets. They have been used widely around the globe to achieve the long term financing objectives of market players. Islamic bonds (*Sukuk*), which are similar in many ways to conventional bonds, were introduced just a decade ago to achieve the same objective of long term financing in the Islamic capital market. Assumptions in terms of homogeneous expectations by market players, the market itself, the cash flow from the underlying assets, and the classical assumption about bonds that they are default free (Choudry) are today applied to contemporary *Sukuk*. Similarly, an examination of bond types and their classifications shows further similarities between *Sukuk* and conventional bonds. Most importantly, conventional bonds and *Sukuk* (Islamic bonds) are important capital market instruments for raising funds.

For example, the April 2008 Security Commission quarterly bulletin of the Malaysian Islamic Capital Market, as at 31st March 2008, shows that the Malaysian Islamic Capital market recorded a total number of 64 *Sukuk* and 74 conventional bonds, with a market value of RM149 billion and RM116.6 billion respectively. While both instruments provide long term financing to investors and borrowers, they are, however, different in qualities and characteristics. *Shari'ah* compliance is a special feature of *Sukuk* that differentiates it from conventional bonds. Detailed features of this instrument are discussed in Chapter Two. Table 1.1 and Figure 1.1 present the total percentage of issuance, total bond values and percentage of total bond values for each type respectively with 2009, 3rd quarter's total market valuations.

Furthermore, Bursa Malaysia became the top listing exchange for *Sukuk* in the world with the value of *Sukuk* listed totaling \$17.76 billion as at December 31st, 2009. This value includes 12 new *Sukuk* issuances for the year. Malaysia was followed closely by Nasdaq Dubai (Malaysia's main rival bourse) with \$15.7 billion in total *Sukuk* listed as at the end of November 2009. While London Exchange had an outstanding value of listed *Sukuk* of GBP6.5 billion, Luxembourg Stock Exchange's total value was \$7.3 billion and Bahrain's total outstanding value was \$2.18 billion and BD330 million (Zawya 2010). Othman, Manzor and Zainal Kan 2010, in a special edition of "*Sukuk* Focus" issued for the 17th Annual World Islamic Banking Conference, 2010, held in the Kingdom of Bahrain,

reported that recent statistics on Malaysian conventional and *Sukuk* bonds indicate that outstanding corporate *Sukuk* value as at September 2010 was RM174.17 billion, while conventional bonds outstanding value was RM132.19 billion.

Table 1.1 Malaysian Islamic Capital Market as at 31st March 2008/3rd Quarter of 2009

	Conventional Bonds		<i>Sukuk</i>	
	2008	2009	2008	2009
Number of issues	74		64	
% to total bonds	53%		47%	
Total values	RM116.6 billion		RM149 billion	
% to total bond valuation	43.9%	42.3%*	56.1%	57.7%*

Source: Malaysian ICM quarterly bulletin 2009

Note: *These figures represent the total bond values for conventional and Islamic bonds as at the 3rd quarter of 2009. Conventional bond values fell by 1.6% while *Sukuk* values in the Malaysia Islamic capital market increased by 1.6%.

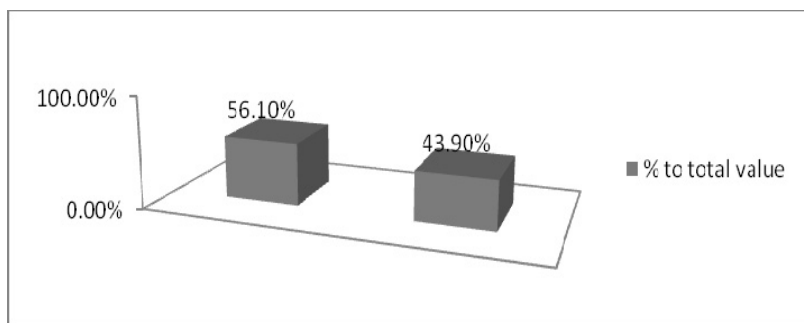


Figure 1.1 Malaysian Islamic Capital Market, as at 31st March 2008

By implication, corporate *Sukuk* is leading the corporate bond market in the Malaysia Capital Market. On the other hand, the total outstanding value for the same period on sovereign and near-sovereign *Sukuk* was RM103.38 billion and the conventional value was RM319.19 billion. Therefore, the total debt market as at September 2010 for conventional and *Sukuk* bonds were RM451.71 billion and RM277.59 billion respectively.

These figures increased to RM464.7 billion and RM294 billion respectively as at the end of 2010 (Parker 2011).

Moreover, trends in the international financial market and globalization have led to renewed interest in the Islamic Financial System (IFS). Muslims around the globe now feel more emboldened to try to live their lives in accordance with Islamic religious dictates, irrespective of where they live in the world (DeLorenzo 2004). Apart from the fact that the trend has become popular among Muslim communities all around the world, it is interesting to note that the demand for *Islamic financial instruments* is equally popular among non-Muslim investors in most countries where these instruments are traded. For example, in the United Kingdom (U.K.), *Sukuk* (Islamic bond) has been recognized by the government as a veritable alternative to existing interest-based conventional bonds. Most Muslims and non-Muslims in these countries invest in *Sukuk* based on their yield and safety, compared to conventional bonds with similar risk, and not on religious dictates.

Chapter Two of this book is dedicated to examining *Sukuk*, its issuance and structuring, applications, and international and sovereign issuance in Muslim and non-Muslim countries around the globe. A review of existing literature on different models and the research design for this study, where model parameters were specified and the Partial Derivative Equations with Ito Lemma, are described in Chapter Four. Chapter Five presents the findings and discussion of results while Chapter Six concludes with implications and recommendations.

1.1 Introduction of Islamic bonds

***Sukuk* as Interest-free bonds**

The revivalism of IFS has led to an increasing demand on Muslim and non-Muslim countries for more organised Islamic Financial Markets (IFMs). The trend has also opened up windows of opportunities for Muslim and non-Muslim investors around the world with high liquidity to invest in profitable ventures with the issuance of Islamic financial instruments. They are equally becoming more willing to invest their funds on a long term basis in some other countries in different parts of the world, where such funds are not only highly desirable but are secured and free of interest-based policies. Therefore, Muslims seeking risk-adjusted good returns on their investments and wishing to invest in financial instruments

at home or abroad prefer contracts and transactions based on Islamic law (*Shari'ah*). It was this that led to the reintroduction of Islamic financing through the establishment of the Islamic Development Bank (IDB) in the early 1970s. The establishment of the IDB was aimed at promoting Islamic banking worldwide.

However, the Islamic banking services were unable to fulfill Muslim investors' yearnings for long term financing (Wilson 2002) in the corporate sector and governments. The establishment of the IDB in 1975 was followed in the 1990s by financial engineering for the Islamic capital market as a solution for liquidity and portfolio management for participants in the Islamic financial arena. The 2000s ushered in the introduction of asset-backed Islamic securities, commonly known as Islamic bonds, *Sukuk* (Baljeet 2006), to solve the long term investment and financing needs.

Sovereign *Sukuk* are similar to conventional fixed income bonds that are default free government treasury bonds, usually referred to as *sovereign bonds*. They are debt instruments that represent cash flows (fixed or floating) which are guaranteed and payable during a specific time period. They provide capital market investors with short, medium and mostly long term financing and investment opportunities. Like conventional bonds, they are traded in the secondary market. With the development of this fixed income bond's market, asset-backed securities are also available and usually carry a fixed or floating rate. September 2001 witnessed the introduction of the first sovereign *Sukuk* by the Bahrain Monetary Authority for liquidity management purposes. This was closely followed by the first global *Sukuk* issued by Malaysia in June 2002.

The default free bonds carry rates that are usually reset on a periodic basis, based on the predetermined benchmark, like three months EURIBOR (Europe Inter-Bank Offer Rate), and six months LIBOR (London Inter-Bank Offer Rate). It should be noted that not all *Sukuk* that are asset-based are indexed to these benchmarks. A classical assumption about these bonds is that they are default free and hence investors earn a default free yield and some liquidity premium.

In general, *Sukuk* is an Islamic bond and got its name from the Arabic word *Sakk* (singular), which means a certificate of entitlement (AAOIFI 2002). Its issuance requires a Special Purpose Vehicle (SPV) that helps in purchasing the productive assets and investors earn a share of the profits from the assets based on a profit-loss sharing basis. Hence, earning on

Sukuk depends on the returns from the Special Purpose Vehicle and the maturity of the *Sukuk* contracts; in other words, its term structure. This collateralization is another distinction between *Sukuk* and the conventional bond because all *Sukuk* issuance requires collateralization while not all conventional bonds are collateralized.

Furthermore, zero-coupon *Sukuk* carry a fixed rate of return and are not tradable due to an absence of underlying assets, and hence, they cannot be traded because they represent pure debt to the issuer. Islamic law permits trading of money for money or debt trading at par value. Some *Sukuk* bonds are like coupon paying bonds with a stream of income, which may be referred to as rental if the contract is based on *Ijarah*, or as profit if the principle of profit and loss is applied. If the return is of a fixed nature, then this remains constant throughout the life of the *Sukuk* and if it is floating, then it changes over time until maturity. It is expected that the peculiarities of *Sukuk* make it difficult to observe the pricing behaviour using conventional bond measures. Therefore, there is the need to observe the pricing behavior of *Sukuk* as the yield on *Sukuk* moves towards maturity.

1.2 Conventional Bonds' Yield-To-Maturity (YTM) and Profit Rates of *Sukuk*

The bond market literature has documented models for the term structure of interest rates on conventional bonds, most importantly for fixed income bonds. These models on interest rates usually employ fixed interest bonds in constructing the yield curves. Albeit, the application of term structure has been developed and upgraded to accommodate term structure analysis on floating rates bonds using advanced analytical tools. As for *Sukuk*, there are no established models derived yet to measure the term structure of profit rate. Moreover, different *Sukuk* structuring like *Murabahah*, *Mudarabah*, *Musharakah*, *Bai Bithaman Ajil* (BBA), *Istisna*, *Salam*, *Ijarah*, etc. are usually applied to *Sukuk* contracts which may have fixed or floating rates. *Murabahah* is a mark-up transaction which does not involve profit/loss sharing; this is also the case with the *Istisna* and *Salam*. *Musharakah* and *Mudarabah* apply profit/risk sharing between the issuer and investors, hence fixed and floating rates apply respectively.

This book focuses on fixed income *Sukuk* only, such as *Musharakah* and *Ijarah*, since the existing models for conventional bonds are applied to the yield curve of profit bearing bonds in the absence of a profit rate model for

Sukuk. Floating rate *Sukuk* will require much more involved modeling that is beyond the scope of this book. Profit rates on *Sukuk* with a fixed income nature are used instead of the fixed interest rates that conventional models usually employ, while other data on *Sukuk* are similar to that of conventional bonds to construct profit rate curves (the yield curve) for government *Sukuk* and credit curves for non-government *Sukuk*.

There are usually different interest rates (yield rates) on different bonds due to their terms to maturity. Interest rates on a period of 3 months, 6 months, 12 months, 5 years, 10 years, and up to a period of 30 years and above differ from one another. Yield to Maturity (YTM), also known as the spot rate variation, causes a fluctuation in the bond price. To observe a rate of return that can be locked in today on different maturities in the future, a graphical depiction of the relationship between yields on bonds that have the same credit quality but differ in maturities is constructed. In addition, bondholders that wish to hold the bond to maturity are given total expected returns based on the YTM (Ariff et al 2009).

The yield curve assists lenders and borrowers in making more objective investment decisions because both are faced with two options. The lender faces the risk of the rate of reinvestment after maturity, after investing on a long term basis, and also faces uncertainty risk in the bond's value in case the need arises to dispose the bond before maturity. The borrower faces the risk of a higher rate of refinancing, or borrows long term with a risk of locking in at a higher cost of borrowing. Long term investors' expectation on reward for investing on a long term basis, otherwise known as the risk-premium (also referred to as term premium), is another important factor which can affect the shift in the shape of the yield curve.

Thus, mapping out the relationship that exists between default free securities that differ only in their terms to maturities, and hence their yields, is referred to as the term structure of interest rates. Decomposition of yield factors which account for the shift in the term structure of interest rates provides a parsimonious representation of the term structure of interest rates. This is employed in pricing fixed income instruments, inflation management, and modeling the term structure of interest rates to study the relationship between long and short term spread.

Meanwhile, *Sukuk* is based on a profit and loss sharing principle, as dictated by *Shari'ah* principles, and is usually asset-backed because Islam encourages the use of underlying assets in contracts, such that investors

assume a certain degree of risk before a legitimate profit can be earned on the investment. By implication, investors must assume ownership risk of the assets before they can be used as an underlying asset. In other words, exchanging money for commodity is permitted while exchanging money for money is prohibited, except when it is equal in amount and it is on the spot exchange.¹ Where there is an underlying asset in a transaction, Islam provides different types of contracts that can be applied to such transaction to soothe both the investor and borrower. These contracts are flexible in nature and can be applied in both the Islamic money and capital markets; hence, application of these contracts in the two markets depends on the term structure.

Sukuk income or stream of profit can be fixed or floating, depending (as we do with conventional bonds) on the type and terms of contract. If, for instance, the type of contract is an *Ijarah* leasing contract, there should be a fixed flow of rentals at specified periods in the contract agreement. If the contract is based on a *Mudarabah* contract which applies the principle of profit and loss sharing, then the stream of flow should be floating and should not be predetermined (Usmani 2008). In other words, the profit rate of Islamic bonds, *Sukuk*, is based on the performance of the underlying assets held by the special vehicle, which in turn depends on changes in the economy. Though the rate may be fixed, the total value of cash flow is not fixed but depends on the cash flow generated by the underlying assets.

Profit or loss is determined by the performance of the economy, specifically the performance of the sector where the investments are made; therefore, uncertainties in the financial and business environment are important considerations. Hence, the profit rates on *Sukuk* are not supposed to be predetermined, especially where the structuring is based on profit and loss sharing and the investor's capital is not guaranteed. The protection for investors in *Sukuk* is basically the underlying asset as they are entitled to the proceeds from its disposal. Theoretically, we may state *a priori* that *Sukuk* should have weaker predictability power since the profit rates fluctuate in accordance with the changes in the business cycle and economic environment.

Furthermore, the yield curve on *Sukuk* is expected to give an insight into whether the market has allocated a fair value to the bond as changes in the yield rate will induce a change in the bond price. Since the curve is shaped

¹ See Buhari Vol. 3, Hadith 334

by the spread between the yields, market players are mostly concerned with the yield spread at which a bond is trading rather than its price. Are investors able to obtain term premium (compensation for lending long) to compensate for the risk involved in lending long? Finding an answer to this question shall, among others, engage our attention in this book.

1.3 Term Structure of Interest Rates Theory and *Sukuk*

Different theories have been developed about the term structure of interest rates that describe the relationship between the interest rate and maturity of bonds. There is an ample amount of existing literature on the term structure of interest rates, especially in developed economies and a few on developing countries. Theoretical development of term structure modeling is mainly in two directions, namely one-factor and multifactor models (Jiang 1997). However, there are four main steps in modeling term structure and these are: specification of a spot rate with the assumption that it follows a stochastic process; application of Ito Lemma function to transform the bond price dynamics into a stochastic equation; imposition of arbitrage free conditions; and the last step is to solve for Partial Derivative Equation (PDE) (Choudry 2005). The market price for risk in the model establishes the link between risk neutral probability and the real world. That said, most studies on *Sukuk* are theoretical. Since there is no documentation of the term structure of profit rate yet in the literature, this book takes on the challenge of constructing a *Sukuk* yield curve that may help to facilitate the prediction of *Sukuk* forward rates.

The conventional bond literature postulates three theories to explain the normal behavior of yield curves (which is usually upward sloping); namely, the expectation theory, the liquidity preference theory, and market segmentation theory. Expectation theory studies the relationship between short term rates and long term rates on bonds, and postulates that the spread between the current rates of interest on bonds predicts the future spot rate (short rates). By implication, when the long rates are above the short rates, short rates rise by the amount of spread between the long and short term rate. That is, long term interest rates are the average of expected short term interest rates on long term bonds. The liquidity preference theory suggests that investors prefer quick returns on their investments and require higher yields if forced to take longer-term investments that will affect the liquidity of their investments. The market segmentation theory suggests that the market is segmented into different classes of investors – for example, short-term investors (like commercial banks) and long-term

investors (like pension funds) – and each segment will have their particular yield curve. The discussions on term structure theories are detailed in Chapter Three of this book. The theories are important in bond pricing with considerations on arbitrage-free conditions and market risks, forward rates predictability and establishing the relationship between interest rates and inflation.

1.4 *Sukuk* market comparison to International Bond Market

It is worthy of note that though the *Sukuk* market is in its infant stage, it holds great potential in the Islamic Capital Market (ICM). Attractive returns on it have resulted in robust growth in the supply and demand of different varieties of Islamic financial instruments in the ICM, though they comprise a tiny fraction of the total international bond market. According to the Bank for International Settlement, *Sukuk* was worth \$1.2 trillion during the first half of 2006 (Nik 2007). The size of the world bond market is approximately \$67 trillion, according to Merrill Lynch.² In other words, the *Sukuk* market is approximately 2% of the total international bond market. A total of 283 issuances have being made so far in the sovereign and international market as at 2007, starting from the Bahrain Monetary Agency *Ijarah Sukuk* of 2001, to Malaysia Total Mobile IMTN *Ijarah Sukuk* of 2007 (Global Investment 2007). Issuance from Malaysia alone was 111;³ a figure that represents almost 40% of the global issuance.⁴

It is pertinent to note that *Sukuk* issued in Malaysia comply with the Malaysian Security Commission (MSC) guidelines on Islamic bonds and with Bank Negara Malaysia (BNM) regulations. A notable feature of Malaysian *Sukuk* is that the issuances are mostly in Malaysian Ringgit. Also, Malaysia is operating a dual financial system; that is, both conventional and Islamic financial system exists (Muhammad Al-Bashir 2008). Muslim economists and *Shari'ah* scholars are yet to come up with an Islamic indicator of profitability, as presently, the profitability rate is indexed to the London Inter-Bank Offer Rates (LIBOR) and this is a

² PIMCO Bond Basics December 2007, accessed from www.pimco.com on 29th January 2009.

³ Refer to Table 1.1 in the appendix for a list of Malaysian *Sukuk* issued from 2002-2007.

⁴ *Sukuk: A New Dawn of Islamic Finance Era*, Global Investment House Research, January 2008.

common practice in Islamic Financial Institutions (IFIs). Thus, IFIs are compelled to benchmark their profit rate on the available interest rate for better competition. This practice has been seen as a distortion of the true market value of underlying assets, and hence, their returns (Muhammad Al-Bashir 2008). It is of interest to note that out of the 111 sovereign issuances in Malaysia as at 2008, only ten were indexed to LIBOR.

This book focuses on Malaysian *Sukuk* because Malaysia is the leading hub for *Sukuk* issuance in the world. As at the end of 2007, Malaysia accounted for over two-thirds of the world outstanding *Sukuk*, estimated at \$62 billion (RM213 billion) by RAM (2009) and so far has the largest number of issuance. The establishment of the Malaysia International Islamic Financial Center in 2006 was aimed at facilitating more issuances of *Sukuk* and to further position Malaysia as the global hub of the Islamic Capital Market.⁵ As at June 2007, the 1st quarter of the year, the Islamic Finance Information Service (IFIS) database showed that there was a growth of 71.4% in the domestic *Sukuk* market and 83.3% in the international *Sukuk* market during 2006. Sovereign *Sukuk* grew by 521% while the Malaysia Ringgit denominated *Sukuk* accounted for 70% of the market.⁶ Moreover, the use of underlying assets and the application of the profit/loss sharing system embedded in the Islamic Financial System (IFS) based on *Shari'ah* is probably an attraction. Conventional and Islamic markets are regulated by the Bank Negara Malaysia (BNM). The interest rate policy of BNM may have an effect on long term bonds and their yield curves, Islamic bonds included.

The existing literature on *Sukuk* discusses the development of financial instruments which are in compliance with the Islamic legal framework (Karf 1997). The literature is concerned with the synchronization of *Sukuk* within the conventional financial system without losing focus of the laid down principles for fixed income instruments in the Islamic context. There are *Sukuk* prospectuses available from different issuers (Tariq 2004) highlighting the price, amount, maturity, returns/redemption and other terms and conditions for the issuance of *Sukuk*. Despite the similarities between conventional and Islamic bonds, evidence could not be obtained that this nascent instrument term structure has been documented.

⁵ <http://www.imf.org/external/pubs/ft/survey/so/2007> accessed on 8th May, 2008

⁶ Global *Sukuk* Market Soar to \$24.5bn H1, 2007, IFIS News, August 2007, accessed August 8, 2008 from www.ameinfo.com

The dynamics of the *Sukuk* market as well as that of conventional bonds are affected by similar macro-economic variables like the economic atmosphere and business cycles. Perhaps that accounts for why *Sukuk* have been found to be analogous in many aspects to the Eurobond (Selim and Faezeh 2007), and why the increasing convergence between conventional and Islamic financing, especially in the case of conventional bonds and *Sukuk*, has been foreseen by scholars in the field of Islamic finance (Mirokhar 2007).

In summary, this book ascertains the pattern of spot rates on *Sukuk* for different maturities which usually cause fluctuations in their prices and the predictability of the profit rates of *Sukuk*. More so, bid-ask prices of *Sukuk* are usually taken at the close of local market trading and are used in return calculations with the assumption that security is purchased at the beginning of the period and sold at the end of the period.

The *Sukuk* term structure is approached based on the assumptions that: the forward rates on *Sukuk* are closely related to the expectations of market players about future short term profit rates; and that the investors' expectations about excess return is constant over time, irrespective of their maturity strategy, due to their strong allegiance to a segmented market that is *Shari'ah* compliant. Meanwhile, in the application of any form of Expectation Hypothesis in the term structure of profit rates of *Sukuk*, there is the need to consider the principles underlining the issuance, pricing, risk, and returns. This will be explored in Chapter Two.

There are currently 14 types of investment *Sukuk* approved by the Auditing and Accounting Organization of Islamic Financial Institutions (AAOIFI). (See Table 1.2 for a detailed description of the different types of *Sukuk* investment.) Any other structuring outside this list is deemed unacceptable. *Sukuk*, especially sovereign ones, are rated 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 2007). 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.

Nevertheless, in terms of some features like rating, redemption procedure, coupon payment and default clauses for sovereign *Sukuk*, *Sukuk* are in many aspects similar to conventional bonds (Selim and Faezeh 2007).

However, in terms of issuance and pricing, there are some differences due to the collateralization of *Sukuk* and the bid-ask valuation as price for *Sukuk* as a result of less secondary market trading. 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 Hypothesis. Based on these premises, one may conclude that application of Expectation Hypothesis to the term structure of *Sukuk* may not be all that irrelevant, since there is no evidence of existing term structure theory on the subject matter.

Table 1.2 14 Types of Investment *Sukuk* Approved by AAOIFI

No	Types
1.	Certificates of ownership in leased assets
2.	Certificates of ownership of usufructs These certificates have various types, including the following from 2.1 to 2.4
2.1	Certificates of ownership of usufructs of existing assets
2.2	Certificates of ownership of usufructs to be made available in the future as per description
2.3	Certificates of ownership of services of a specified supplier
2.4	Certificates of ownership of services to be made available in the future as per description
3.	<i>Salam</i> certificates
4.	<i>Istisna'a</i> certificates
5.	<i>Murabahah</i> certificates
6.	Participation certificates
6.1	Participation certificates managed on the basis of <i>Musharakah</i> contract
6.2	Participation certificates managed on the basis of <i>Mudarabah</i> contract
6.3	Participation certificates managed on the basis of investment agency
7	<i>Muzara'a</i> (sharecropping) certificates
8	<i>Musaqah</i> (irrigation) certificates
9.	<i>Mugarasa</i> (agricultural) certificates

Source: AAOIFI Exposure Draft *Shari'ah* Standard No. 18, 2002

CHAPTER TWO

INTEREST AND EXIGENCY OF *SUKUK* BONDS FINANCING: ISSUES AND DISCUSSIONS

2.1 Introduction

In this chapter, an attempt is made to discuss the concept of interest which has engaged the attention of Islamic scholars in contemporary Islamic finance. This is followed by a brief overview on the history of IFS in the world and in Malaysia in particular. A discourse on different classifications of conventional and *Sukuk* bonds with their underlining assumptions, characteristics and issuance; importance and risks of *Sukuk*; RAM rating of asset-backed security in Malaysia; and issuance and Islamic applications are also discussed. A global explosion of Islamic financial instruments as well as the need for *Sukuk* (Islamic bonds) in different countries as an investment alternative to conventional bonds in diversifying risk, especially in the Middle Eastern countries and a few countries in the West, is also examined. The chapter concludes by linking assumptions of term structures with *Sukuk* bonds and the *Maqasid Al-Shari'ah* (the objectives of *Shari'ah*).

2.2 Islam and the Contemporary Concept of Interest

The pivot on which Islamic financing rests is none other than the *Shari'ah* of Allah, the teachings of Allah based on the Holy Qur'an and *Sunnah*, or the sayings and deeds of the Prophet of Islam – Muhammad. In Islam, faith and work are inseparable, hence, wealth is considered important and everyone is encouraged to strive for it and live on their earnings. The *Shari'ah*, therefore, had laid down ways of earning and ways of disposing of these earnings. The principles of social justice, transparency and economic development for the common interests of the public (Eid 1994)

have been put in place to curb exploitation, deception and illegal acquisition of wealth, and to promote flexibility in the system. The terms and conditions of a contract must be within the *Shari'ah* legal framework, while honesty, altruism and good faith are the key words. The central tenet of the Islamic financial system is prohibition of *Riba* (usury), which means excess income on loanable funds, which may be interpreted as compounding interest. This has been interpreted by Islamic scholars to mean “unjustifiable increase of capital, whether through loan or sales” covering as well the charging of interest (Iqbal and Tsubota 2006). Despite differing opinions among Muslim scholars and various interpretations by their Western counterparts, both sides seem to agree that the philosophical underpinnings of Islamic economics stem from a “moral revulsion against economic systems that allow members of a Muslim community to slip below subsistence”, according to Chaudhry (Eid 1994).

The hallmark of conventional banking is interest; the rate of interest is usually predetermined and guaranteed, depending upon the time period. Customers' deposits with a conventional bank attract a fixed interest rate, while borrowers must also pay a fixed interest on their borrowings. The same principle applies to conventional money and capital market institutions. Their profit depends a great deal on the margin between the loan interest rate and saving interest rate for banks and on the interest rate for other conventional institutions. This is the principle of the conventional financial system. Loss incurred by a borrower is borne only by him. A borrower needs to go an extra mile to obtain financial advice on his business for better performance. This has its implications on the cost of capital.

This conventional principle is not consonant with the teachings of Islam on transactions. Moreover, Islam has provision for Muslims who are willing to direct their earnings into a legitimate and profitable investment. This provision is embedded in the Islamic Financial System (IFS), which operates on a profit sharing basis with an essential feature that it is interest free. Human capital and financial capital are placed at par under this system. For example, under the *Mudarabah* structure of financing, the skill provider (*mudarib*) loses only the time and efforts that he has invested in the venture, while the supplier of funds or the financier (*rabbulmal*) exclusively loses the financial investment (Saiful 2005).

In addition, the creditor may possibly have a say on the use of his funds. That is, the right to restrict the use of his funds in some certain investment,

especially in ethical and permitted investments, a practice that may probably reduce the moral hazard in such a transaction. In other words, creditors are like shareholders, to share profit or losses, as dictated by the financial environment. This led to attempts by Muslim countries around the globe to re-introduce the IFS. While Iran, Pakistan and Sudan stick to a pure interest-free financial system, the majority have adopted both conventional and Islamic financing.

The reintroduction of the IFS is regarded as an encouraging development in the economies of different countries that are disintegrating as a result of the fiat interest based monetary system. According to Cheon and Bruce (2004), this is attributed to economic measures caused by the international debt crisis, sometimes called the Third World debt crisis due to the IMF and the World Bank lending more than they should have to the sovereign governments of some of these Less-Developed Countries (LDCs). This is as a result of loan rescheduling after defaulting, which definitely increases the debt of the borrower.

Ironically, the IMF Structural Adjustment Programs for these countries were even predicated on the economic notion that the people of these countries must experience pain and suffering before they can enjoy economic buoyancy, which is contrary to sound economic and banking principles. This is most likely as a result of stringent and strangulating conditions attached to this programme and the loan. The IMF has opened up their markets through the elimination of trade barriers but could not force the rich countries of the world to integrate their various national economies in such a manner that it would benefit the Third World and other LDCs.⁷

The re-introduction of Islamic financing has, however, witnessed a series of developments, amongst which is financial engineering (new product development) and most especially the surge of *Sukuk* bonds, not only in Muslim nations, but also extending to the Western borders.

⁷ See Bose Mihir: *Crash! A New Money Crash*, 1989, from Cheon and Bruce (2004).

2.3 Islamic Financial System: An Overview

2.3.1 Islamic Financial System Definition

Defining the Islamic Financial System (IFS) as “interest-free” is unfair and unjust to the system. This is because *Shari’ah*, on which the system is based, encompasses many other Islamic principles other than interest-free transactions. The system has been in existence since the early history of Islam Iqbal and Tsubota (2006). Muslim merchants became indispensable middlemen in fostering trade through their development of sophisticated instruments in Spain, the Mediterranean and the Baltic states throughout the Middle Ages. Revivalism of the system is dated back to post-colonisation in Muslim countries, as far as modern banking history is concerned.⁸

The system encompasses the Islamic financial market and its branches which consist of the Direct and Indirect financial markets. The direct financial market is a platform for the Surplus Spending Unit (SSU) and the Deficit Spending Unit (DSU) to interact directly in the buying and selling of stocks and bonds without the intermediation of financial institutions as obtainable in the indirect financial market. The direct financial market is the Islamic Capital Market (ICM) which consists of the Islamic Bond Market and the Islamic Equity Market (Saiful 2005). The major ingredient in the system is *Shari’ah* compliance.

The ICM is a *Shari’ah* based system, with *Shari’ah* being comprised of a set of laws, as dictated in the *Qur’an*; *Sunnah*, or sayings of the Prophet; Islamic scholars’ deductions, or *Qiyas* (considering public interest or *maslaha*); and consensus, or *Ijmal*. The *Shari’ah* governs all aspects of Muslim life, economic, and societies without exemption. This is aimed at promoting justice, fairness, risk sharing, equitable wealth distribution, good ethics, etc. Ayub (2007) said that “the fundamental feature of Islamic economics and finance is socio-economic and distributive justice”. Thus, theology regulates not only the private lives of Muslims but also public life, including business practices.

Eid (1994) referred to it as a “code of life”. For instance, the Islamic financial transaction, whether in the direct or indirect financial market, is based on the principle of *iwad* – counter value – which means that the

⁸ ibid