

**PERFORMANCE/COMMODITY-LINKED  
SUKŪK FOR PRIVATE AND PUBLIC  
SECTOR FUNDING: SOME PROPOSED  
MODELS**

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A dissertation submitted in partial fulfillment of the  
requirements for the degree of Doctor of Philosophy  
in Islamic Finance

INTERNATIONAL CENTRE FOR EDUCATION  
IN ISLAMIC FINANCE

**By**

**ABDOU DIAW**

Major Supervisor: Prof. Dr Obiyathulla Ismath Bacha

**July 2011**

## AUTHORIZATION TO SUBMIT DISSERTATION

This dissertation of Abdou DIAW submitted for the degree of PhD in Islamic Finance on “Performance/Commodity-Linked Sukūk for Private and Public Sector Funding: Some Proposed Models”, has been reviewed in final form. Permission, as indicated by the signatures and dates given below, is now granted to submit final copies to the Graduate Studies Department (GSD) for approval.

Major Supervisor \_\_\_\_\_ Date \_\_\_\_\_

Prof. Dr Obiyathulla Ismath Bacha

Co-Supervisor \_\_\_\_\_ Date \_\_\_\_\_

Dr Ahcene Lahsasna

Internal Examiner \_\_\_\_\_ Date \_\_\_\_\_

Prof. Emeritus Datuk Dr Mohamed Ariff bin Abdul Kareem

External Examiner \_\_\_\_\_ Date \_\_\_\_\_

Prof. Dr Fauzia Bt Mat Nor

Chairman \_\_\_\_\_ Date \_\_\_\_\_

Prof. Datuk Dr. Syed Othman Alhabashi

Final Approval and Acceptance by the GSD

\_\_\_\_\_ Date \_\_\_\_\_

Prof. Dr Obiyathulla Ismath Bacha

## ABSTRACT

Current *Sukūk* structures often fall short of adequately meeting the *Sharī'ah* conscious investors' needs. The objective of this dissertation is, therefore, to address this issue by conceptualizing and operationalizing three innovative models of *Sukūk*. The first proposed model of *Sukūk* is based on the concept of *Mushārah* and is meant for companies and revenue generating infrastructure projects. The model has an incentive-compatible feature by making the share of the issuing entity in the profit positively related to its performance. In addition to this, a convertibility clause could be included. The second proposed *Sukūk* model is for financing non revenue generating public sector projects whose return is linked to the prices of a basket of export commodities of the issuing country. The underlying *Fiqh* concept used is the Forward *Ijārah*. The third model is similar to the second; however, its return is linked to the GDP performance of the issuing country. The theoretical properties of the models are empirically validated through two types of simulations: Monte Carlo Simulation and Backtesting method. Aside from, the potential application of the findings, this dissertation has at least three main theoretical contributions. First, it adds to the literature on incentive-compatible contracts in Islamic finance, by addressing the under utilization of partnership contracts. Second, it addresses the issue of efficient debt management and benchmarking against interest rate in an Islamic framework. Third, it proposes an innovative and systematic framework for the development of *Sharī'ah* compliant products. All the proposed models are designed to complement and not replace existing financial instruments in such a way that returns are linked to indicators from the real economy with a differentiated and distinctive risk- return profile. The proposed models are based on simplicity, as each uses only one basic *Sharī'ah* nominate contract, but they will constitute a new asset class that offers a high potential for risk-sharing and diversification.

## DECLARATION

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-----  
(signature)

Date: -----

## VITA

### **Postgraduate Diploma in Islamic Banking & Finance**

International Islamic University Malaysia

### **Master's Degree in Applied Mathematics**

Cheikh Anta Diop University of Dakar/ Senegal

### **Bachelor's Degree in Mathematics**

Cheikh Anta Diop University of Dakar/ Senegal

### **General Certificate of Education – Advanced Level**

**(Mathematics & Physical Sciences)**

Ministry of Higher Education of the Republic of Senegal /Cheikh  
Anta Diop University of Dakar/ Senegal

### ***Brevet d'arabe littéral*** (Diploma of Literal Arabic)

Université Sorbonne Nouvelle Paris III /  
France

### **Intermediary Arabic Junior High School Certificate**

Ministry of Education of the Republic of Senegal

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## LIST OF ABBREVIATIONS

AAOIFI	Accounting and Auditing Organization for Islamic Financial Institutions
BMA	Bahrain Monetary Authority
BOT	Build-Operate-Transfer
CAPM	Capital Asset Pricing Model
CF	Cash Flow
CLS	Commodities-Linked <i>Sukūk</i>
DIB	Dubai Islamic Bank
e.g.	<i>exempligratia</i> (for example)
EBIT	Earnings Before Interest and Tax
<i>et al.</i>	<i>et alia</i> (and others)
etc.	<i>et cetera</i> (and so forth)
GIFF	Global Islamic Finance Forum

GLS	GDP-Linked <i>Sukūk</i>
GDP	Gross Domestic Product
GNP	Gross national Product
GCC	Gulf Cooperation Council
HNWI	High Net Worth Individuals
IFS	International Financial Statistics
IIFM	International Islamic Financial Markets
IMF	International Monetary Fund
IDB	Islamic Development Bank
IFA	Islamic <i>Fiqh</i> Academy
IFIS	Islamic Finance Information Service
IFSB	Islamic Financial Board Services
IFI	Islamic Financial Institutions
IPDS	Islamic Private Debt Securities
IRTI	Islamic Research and Training Institute
LIBOR	London Inter Bank Offer Rate
MCS	Monte Carlo Simulation
MSCI	Morgan Stanley Composite Index
MTFC	<i>Mushārah</i> Term Finance Certificates
PV	Present Value
PPP	Public-Private-Partnership
RA	<i>Radiallaahu Anhu</i>
ROE	Return On Equity
SAW	<i>Sallallaahu Alayhi Wasallam</i>
SPV	Special Purpose Vehicle
UNCTD	United Nations Conference for Trade and Development
VAR	Value-at-Risk

## CHAPTER ONE INTRODUCTION

### 1. BACKGROUND

The second half of the last century has witnessed important political development which ultimately led to the independence of most of the Muslim countries that were previously under colonial domination. That political development was accompanied by a religious resurgence which called for the application of Islamic principles in all areas of life, particularly in finance. With the increasing amounts of accumulated wealth in the hands of Muslims in the oil-rich countries during the seventies, several initiatives gave birth to the establishment of Islamic Development Bank (IDB) and Dubai Islamic Bank (DIB) which is the first Islamic commercial bank in the world. The following decades have seen the establishment of hundreds of Islamic Financial Institutions (IFI) ranging from Islamic banks to Islamic capital markets institutions. These IFIs are supposed to conduct their operations according to *Shari'ah* stipulations

in commercial transactions. One of these stipulations is the prohibition of payment and receipt of interest which constitutes a form of *Ribā*, severely condemned in the Quran. Given the important role of interest in the conventional financial system, it became necessary to come up with alternative products that satisfy the financial needs of the Muslim populations.

In most developed and emerging countries, capital markets have gained increasing importance as a platform for fund mobilization and resource allocation. Two main instruments are usually employed for this purpose: equity instruments and debt instruments. If equity instruments are acceptable, from *Sharī'ah* point of view, with few reservations that the researcher will discuss later, that is not the case for the conventional debt instruments. The reason being the interest payment embedded in the latter. Since in certain circumstances<sup>1</sup>, the equity instruments are not adequate to raise the needed funds or to meet the specific risk appetite of a number of investors, it was necessary to develop *Sharī'ah* compliant instruments to meet that demand. *Sukūk*<sup>2</sup> were found to be the appropriate instrument for mobilizing long term fund in the Islamic Capital market as evidenced by their wide acceptance and their tremendous development. In its Standard No. 17, the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) defines *Sukūk* as "*certificates of equal value representing after closing subscription, receipt of the value of the certificates and putting it to use as planned, thus it represents common shares and rights in the underlined assets or their usufructs and services*". From this definition, it appears that

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<sup>1</sup> For example, equity financing would not be suitable for governments projects which do not generate revenues.

<sup>2</sup> ' *Sukūk* ' is an Arabic word in plural; the corresponding singular is 'Sakk'. More elaboration on this in chapter 3.

*Sukūk* represent proportionate ownership of an underlying asset or service, thus entitling their holders to the cash flows there from.

The rapid growth experienced by the *Sukūk* market during the first stage of the decade was followed by a sharp slow down in the period 2008 – 2009. Two factors have been put forth as causes of this slow down: the global financial crisis and a negative comment of AAOIFI about the conformity to *Sharī'ah* principles of many *Sukūk* structures. While the first factor can be considered as temporary, the second factor, in contrast, if not addressed, threatens the very foundation of the industry, since *Sharī'ah* compliance constitutes the main justification of its existence.

## **2. PROBLEM STATEMENT**

On both the demand and supply sides of the *Sukūk* market, the potential is high. On the demand side, there is an increasing amount of wealth accumulated in the hands of Muslim investors, particularly in the oil-rich Gulf countries, who ask for investment vehicles that are in conformity with the rules of *Sharī'ah*. The wealth in the hands of the Middle Eastern High Net Worth Individuals (HNWI) alone is estimated at US \$ 1.5 trillion, in 2009 (GIFF, 2010; p.32). Besides this category of investors there are others who find *Sukūk* as a suitable instrument for ethical investment and diversification. The oversubscription of many *Sukūk* issues is an additional testimony to the huge demand for *Sukūk*.

On the supply side, there are enormous infrastructure projects, in the Muslim countries that require huge amounts of fund. The planned infrastructure projects in the Gulf Cooperation Council (GCC) countries, from 2008 to 2013, amount to US \$ 2

trillion (GIFF, 2010; p.31). A large number of infrastructure projects, in this region, have been financed through *Sukūk* issuance. As most of the Muslim countries fall in the category of developing countries the need for developmental projects is very high. The World Bank (2008) estimates the total annual demand for infrastructure investment and maintenance from the developing countries to US \$900 billion. Moreover, the recent crisis in the credit market, gave many conventional governments and corporations additional reasons to diversify their source of funding. This explains the increasing openness of many non-Muslim countries to Islamic finance. Also the IFIs which usually use the short-term funds, on their liability side, to finance their long-term assets, are in need of *Sukūk* to manage this maturity mismatch (Standard & Poor, 2009).

To make the high potential supply match this high potential demand a credible *Sukūk* market is crucial. However, there are currently some issues that impede the *Sukūk* market to take full advantage of the abovementioned potentials.

First, as the researcher will show in Chapter Three, the *Sharī'ah* compliance of several *Sukūk* structures in the market and their economic efficiency are questioned by many Muslim scholars. Indeed, the use of *Hiyal*<sup>3</sup> in the form of sale and buy-back elements in many *Sukūk* structures, the inclusion of guarantee in partnership contracts and the benchmarking against interest rates are rejected by a majority of Muslim scholars.

Second, to raise funds through *Sukūk*, companies may use either sale-based *Sukūk* or lease-based *Sukūk* or partnership-based *Sukūk* (e.g. *Mudhārabah* and *Mushārah*). The non-tradability of the sale-based *Sukūk* makes them unattractive to

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<sup>3</sup> Pl. of *Hilah* i.e. legal trick to circumvent *Sharī'ah* rulings.

investors. The *Ijārah* (lease) concept may not be appropriate for those companies that need new investment/venture but do not have eligible asset for *Ijārah*. The partnership-based *Sukūk* appear suitable to overcome the shortcomings of the two other types. However, given the potential agency problem found in them, a proper design of the structure is necessary to attract investors.

Third, the recurrent sovereign debt crises points out to the importance of efficient debt management that could consist of raising the needed funds through financial instruments indexed to some indicators from the real sector of the economy. Such an idea has the property of strengthening the linkage between the real and the financial sectors of the economy and allows risk sharing between the parties involved in the transaction. Despite the compatibility of such an idea with the spirit of Islamic finance, the *Sukūk* market has not yet taken advantage of it as an efficient alternative to benchmarking against interest rates.

From the above discussion, it appears that in spite of the high potential on both the demand and supply sides of the *Sukūk* market, the current *Sukūk* structures fall short of adequately meeting the market's needs as they exhibit several shortcomings such as:

- The violation of some *Sharī'ah* principles in the area of transaction through the recourse to legal tricks (*Hiyal*) and the combinations of controversial contracts ;
- The lack of a risk sharing element in many current *Sukūk* structures due to the detachment of the cash flows from the performance of the underlying asset and the real sector of the economy;

- The complexity of some *Sukūk* structures that induces additional costs and legal uncertainty in case of litigation.

Such a situation warrants the development of innovative models of *Sukūk* that fill the above gaps. This study is a contribution to that task. To do so, it attempts to provide answers to the following research questions:

- **Q1:** How do we design new models of *Sukūk* that would be economically efficient, offer alternative risk-return profiles and, at the same time, uphold the principles of *Sharī'ah*?
- **Q2:** What are the risk/return characteristics of the proposed models?
- **Q3:** What are the potential benefits of the new models of *Sukūk* to the investors and the issuers?

A glimpse of the history of the problem and its development will be provided in Chapter Three.

### **3. SIGNIFICANCE OF THE STUDY.**

Many scholars in the field of Islamic finance have emphasized the crucial importance of financial engineering for the satisfaction of the industry needs (See for instance, Obaidullah, 2005; Al-Suwailem, 2006; Iqbal and Mirakhor, 2007). The study is carried out in a context marked by an increasing interest in Islamic finance as a result of its relative resilience during the recent global financial crisis and the excess liquidity in the GCC countries, in particular. The context is also marked by the

controversies surrounding the economic efficiency and *Sharī'ah* compliance of many *Sukūk* structures in the market. Thus, drawing on the normative nature of Islamic finance, this dissertation brings the debate on *Sukūk* a step further by conceptualizing and operationalizing new ideas for *Sukūk* structuring. As a result, it has at least three main theoretical contributions, besides the potential practical applications of the findings:

- It adds to the literature on incentive-compatible contracts in Islamic finance, which aims to address the under utilization of partnership contracts, by proposing a model of *Sukūk Mushārah* with a variable profit sharing ratio which could be converted into common stock.
- It addresses the issue of efficient debt management and the issue of benchmarking against interest rate in an Islamic framework by proposing two models of *Sukūk* whose profit rate is linked to a price index of a basket of export commodities and the Gross Domestic Product (GDP) development of the issuing country, respectively.
- It proposes an innovative and systematic framework for the development of *Sharī'ah* compliant products.

All the proposed models are designed in such a way that the returns are linked to some indicators from the real economy and their risk return profiles are different from that of the existing *Sukūk*.

It is worth noting that these new models are not meant to replace the accepted *Sukūk* structures, but rather complement them. They provide investors and issuers with more options in a way that is consonant to the objectives of *Sharī'ah* in transactions.

#### 4. DEFINITION OF THE TERMS.

In this section, the researcher provides the definition of some terms that will be frequently used in the study, in particular the Arabic terms. Other terms will be defined in due course as they need some elaborations.

***Sharī'ah***: Is the sum total of Islamic teaching and system, which was revealed to Prophet Muhammad *Sallallaahu Alayhi Wasallam*<sup>4</sup> (SAW) recorded in the Quran as well as deducible from the Prophet's divinely – guided lifestyle called the *Sunnah* (Laldin, 2006, p.3).

The definition of ***Sharī'ah compliance*** will be provided later in Chapter Two, as it requires some background discussion.

***Fiqh*** or science of Islamic law is the knowledge of one's rights and obligations (mainly) derived from the Quran or the *Sunnah* of the Prophet, or the consensus of the opinions among the learned ('*Ijmā'*), or analogical reasoning (*Qiyas*) (Laldin, 2006, p.6).

***Fiqh Mu'āmalāt***: Is the category of *Fiqh* that covers the rulings that govern the relationships between man and man and man and other creatures of Allah (Laldin, 2006, p.10).

Two words in the title of the dissertation deserve brief explanation.

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<sup>4</sup> Invocation dedicated to the Prophet.

**Performance:** By performance the researcher specifically means the performance of the *Sukūk* issuing firm, measured by its operating profit or the performance of a *Sukūk* issuing country, measured by its GDP.

**Model:** By model of *Sukūk*, the researcher means a *Sukūk* structure with a definite underlying *Sharī'ah* concept and the related payoff. It is, therefore, used interchangeably with structure.

**Different types of *Sukūk*:** In its *Sharī'ah* Standards, AAOIFI (2004a) recognizes 14 eligible asset classes in its investment *Sukūk* Standard. These are:

1. Certificates of ownership in leased assets: the investor owns, through the *Sukūk al-Ijārah*, a share of the asset and the related income.
2. Certificates of ownership of usufructs of existing assets: the *Sukūk* holders own the securitized beneficial ownership of the underlying leasehold assets through *Sukūk manfa'at al-Ijārah*.
3. Certificates of ownership of usufructs to be made available in the future as per description: the investor owns, through *Sukūk manfa'at al-Ijārah mowsufa fi al dzima*, securitized beneficial ownership of the underlying leasehold assets to be made available in the future.
4. Certificates of ownership of services of a specified supplier: these are *Sukūk milkiyat al khadamat* that represent ownership of the service of specified supplier (such as educational programmes in a nominated university).

5. A business owner wishing to undertake specific services may raise the funding for such services by pre-selling the services and their expected benefits by issuing *Sukūk milkiyat al khadamat mawsofa fi aldzima*.
6. A business wishing to produce/provide specific goods/commodities at a future date may pre-sell such future delivery goods/commodities and monetize the assets through the issuance of *Sukūk al-Salam*.
7. Builders, developers and manufacturers may fund the cost of construction, development, or manufacturing and deliver the to-be-completed assets at a future date through the issuance of *Sukūk al-Istisnā'*.
8. A business wishing to acquire certain goods or commodities for future sale under a *Murābahah* agreement funds the acquisition of such goods or commodities through the issuance of *Sukūk al Murābahah*. The *Sukūk* holders shall own such goods or commodities and shall be entitled to the realized sales price of the same.
9. A business may seek capital participation in its corporate capital or for a specific project the issuance of *Sukūk al-Mushārahah*. The *Sukūk* holders share in the risks and rewards of the business at the general level or specified sub-business or project level.
10. An entrepreneur (*Mudhārib*) with a good business idea but without capital or little capital may access funds for a proposed business/project from capital providers through the issuance of *Sukūk al-Mudhārahah*. The *Sukūk* holders share in the risks and rewards of the *Mudhārahah*.

11. Capital may be raised through *Sukūk* issues to acquire certain assets or goods or services which are then entrusted to an agent or *wakil* for management on behalf of the owners. In this *Sukūk al-wakāla*, the *Sukūk* holders take the risk of the underlying assets or goods or services and are entitled to any profits generated from the same.
12. The principal owner(s) of an agricultural land (or the owner(s) of the leasehold estate) may raise funds for the cultivation of the land through issuing *Sukūk al-muzāra'ah*. The subscribers to the *Sukūk* are entitled to a share of the produce of the land.
13. The owner(s) of an orchard with productive trees may finance their irrigation, maintenance and orchard management needs by issuing *Sukūk al-Musāqah*. The subscribers are entitled to a share of the produce of the trees.
14. The owner(s) of productive, cultivated farmland may access funds to maintain the land as well as the trees/crops by issuing *Sukūk al-Muqārasah*. The *Sukūk* investors are entitled to a share of the produce of the land and of the trees/crops.

## **5. OUTLINE OF THE CHAPTERS IN THE DISSERTATION.**

This dissertation comprises seven chapters. Each chapter starts with an introductory section that gives an overview of the objectives and structure of the chapter, followed by the main part which can comport several sections. The conclusion represents the last section which offers a summary of the main points of the chapter.

Chapter Two contextualizes the study. For a reader familiar to Islamic finance it constitutes a background for the subsequent discussion, but it provides the neophyte with key concepts in Islamic finance that need to be understood. The chapter starts with a discussion on the rationale for Islamic finance, followed by the presentation of the key rulings or principles that support the field. A separate discussion on the objectives of *Sharī'ah* in transactions is carried out to show that there should not be a conflict between form and substance in Islamic finance. The reason is that all the identified rulings serve some specific objectives of *Sharī'ah* in the areas of commercial transactions. Thus, the researcher has identified two main objectives that serve as criteria for the *Sharī'ah* assessment of *Sukūk* models in the last chapter. A discussion on Islamic capital market and the current development of the *Sukūk* market is carried out in two different sections of the chapter.

Chapter Three reviews the literature related to the topic. It presents the concept of *Sukūk*, its history and its potential economic benefits. The discussion is followed by an examination of the issues in the *Sukūk* market. In this chapter, the researcher argues that to fully take advantage of the potential benefits of the *Sukūk* these issues should be addressed and the way to do so is through innovation. Wisdom can be taken from anywhere, and conventional finance has some good aspects that can be useful to Islamic finance. In this regard, two innovative ideas discussed in conventional finance literature are explored, these are: the incentive-compatible contracts and the GDP/Commodity-linked bonds. These two ideas present opportunities for risk sharing and for integrating the financial sector to the real sector of the economy. Both of them fit well to the principles of Islamic finance.

Chapter Four presents the method employed to develop new models of *Sukūk*. Thus, the method employed is a process which consists of 5 steps that are grouped into two main parts: theoretical and empirical. The theoretical part comprises the first three steps: the discussion of the economics and the *Sharī'ah* issues as well as the mathematical formulation. The empirical part is constituted of simulations and the analysis of the results. Two forms of simulations are employed to test the effectiveness of the models and unveil the characteristics of the returns: Monte Carlo simulation (for the first model only) and backtesting.

The structure of Chapter Five, like that of Chapter Six, follows the process explained in Chapter Four. Chapter Five is about the first model of *Sukūk* for Corporate and revenue generating projects, whereas Chapter Six concerns the second and third model for government infrastructure projects that do not generate revenue. The main method used for the simulations is Backtesting. However, given the limitation of the data to carry out the backtest for the first model, Monte Carlo Simulation (MCS) is also employed, as a complement, to further test the effectiveness of the model.

Chapter Seven concludes the study. The answers to the research questions, formulated from the problem statement, are presented. The models are evaluated from *Sharī'ah* perspective, based on the two objectives of *Sharī'ah* in transactions, discussed in Chapter Two, followed by the assessment of their economic efficiency. The theoretical implications as well as the policy implications are then examined.

