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## Original Article

# Investigating the implications of derivative securities in emerging stock markets: The Islamic perspective

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**ABSTRACT** This article presents a preliminary framework for structuring derivative securities in Muslim stock markets. It is evident that derivative markets play a crucial role in the global financial system and make a vital contribution to creating an efficient economic system. However, the Islamic perspective on derivative securities, including the possible restrictions on derivative trading, has not been closely examined. This article attempts to fill this gap in the literature by presenting the current stance of Gulf Cooperative Countries capital markets. The article also examines the Kuwaiti experience with options trading and provides recommendations for adequately applying 'sharia-compliant' derivative securities to global financial markets.

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## INTRODUCTION

The term 'financial engineering' covers a wide variety of sophisticated financial instruments. Financial engineers are responsible for combining, designing, researching, developing and implementing a range of innovative financial instruments for commercial use. They come from diverse backgrounds that include investment and commercial bankers, credit analysts, stock and commodity traders, mathematicians and lawyers. Throughout this article, the importance of the role of financial engineers, in our case Islamic financial engineers, in creating derivative securities becomes apparent.

This article presents a preliminary framework for structuring Islamic derivative securities in emerging stock markets. It is evident that derivative markets play a crucial role in the global financial system and make a vital contribution to creating an efficient economic system. However, the Islamic perspective on derivative securities, including the possible restrictions to derivative trading, has not been closely examined. This article attempts to fill this gap by presenting the current stance of the Gulf Cooperative Countries (GCC) capital markets. The article also examines the Kuwaiti experience with futures and options trading and provides recommendations for adequately applying 'sharia-compliant' derivative securities to Islamic financial markets.

This article begins with an overview of the evolution of derivative securities in global markets, and then provides an introduction to options trading in emerging markets. Following

this, the Islamic view of options and the previous literature are summarized. The article then provides concluding remarks on the importance of structuring innovative sharia-compliant securities.

## THE EVOLUTION OF DERIVATIVE SECURITIES

Derivative securities provide hedging advantages in global markets against financial risk to investors, corporations and governments. Aside from hedging, the derivatives' function of 'price discovery' is another integral component, with derivative markets being able to provide information about market-clearing prices. Futures and options exchanges reflect demand and supply conditions through a broad distribution of equilibrium prices. The article will examine the Kuwaiti market experience and provide an assessment of its application relative to global markets.

Derivatives markets are increasingly becoming a critical part of modern security markets. The major role played by derivatives markets takes three main forms: risk management, price discovery and transactional efficiency. As explained earlier, risk management is applied through hedging practices to insure portfolios and trading positions, limiting any losses that may occur. In addition, futures and options markets reflect the markets' price reaction, and hence the derivatives market provides information about supply and demand on securities traded.

The magnitude of derivatives markets is statistically evident. At one point in the early

1990s, the total value of derivatives amounted to US\$35 trillion, which came close to the total value of securities globally (\$48 trillion). For emerging markets, the ratio of stock market size to GDP is 29 per cent, and is predicted to increase in the future.<sup>1</sup>

## INTRODUCTION TO OPTIONS CONTRACTS

An options contract gives the buyer the right, but not the obligation, to carry out a transaction involving an underlying asset, security or commodity, at a predetermined price called the exercise or strike price on or before a fixed date called the expiration date. Options are divided into two forms, Call and Put.

Options can be designed and created following one of two choices between European options and American options. American options can be exercised on the maturity date or at any time between the initiation of the contract and the maturity date, while European options can only be exercised on the maturity date. Hence, a European-style option will only be exercised when a gain is realized for the option purchaser.

The two crucial terms in any options contract would have to be the exercise price and the option premium. The exercise price, or the striking price is the price the buyer of call options will pay, or the seller of put options will receive from the option seller (writer) if the option is exercised. The option premium is the up-front payment made by the option buyer to the option seller, which is priced using an analytically complex model.

In an effort to produce a model that applies a derivative to measure how the discount rates of warrants changes with time and stock price,

The Model:

$$C = SN(d_1) - Ke^{-rt}N(d_2)$$

C = Theoretical call premium

S = Current Stock price

t = time until option expiration

K = option striking price

r = risk-free interest rate

N = Cumulative standard normal distribution

e = exponential term (2.7183)

$$d_1 = \frac{\ln(S/K) + (r + \frac{s^2}{2})t}{s\sqrt{t}}$$

$$d_2 = d_1 - s\sqrt{t}$$

s = standard deviation of stock returns

ln = natural logarithm

**Figure 1:** Black–Scholes valuation model.

Myron Scholes and Fisher Black jointly developed the illustrious Black–Scholes equation for valuing European-style options (as shown in Figure 1). The eminent finance theory provided options traders with a simple and precise valuation technique. The discovery also illustrated how options can be virtually duplicated by a procedure of dynamic trading in the underlying asset.

In essence, the discovery proved that a call option is equivalent to embracing a fraction of the underlying asset, where the fraction changes over time. Therefore, it can be said that the purchase of a call can be replicated by holding a partial stance in the underlying asset.<sup>2</sup>

The model clearly shows that the price of the call premium is a function of stock price, striking or exercise price, volatility and the risk-free interest rate. Comprehending the logic behind the model can be obtained by dividing it into two parts. The first part, SN(d1), obtains the expected benefit from purchasing the stock outright, and is calculated by multiplying the stock price by the change in stock premium with

respect to the change in the underlying stock price,  $N(d1)$ . The second part,  $Ke^{-rt}N(d2)$ , represents the present value of the exercise price on the expiration day. Thus, the valuation is computed by taking the difference between the two parts.

The assumptions of the Black–Scholes model must be mentioned, although the model can be modified to sustain its effectiveness over these assumptions. The model assumes that the stock does not pay dividends; therefore, the model could be adjusted by discounting the future dividend from the stock price. The model also assumes that markets are efficient and that no commission is paid. One critical assumption is that interest rates remain constant and known. The model utilizes the risk-free rate to support the statement. The value can best be evaluated by obtaining government Treasury bill rate with 30 days left to maturity. Even so, interest rates with significant volatility over a short period of time may limit the model's effectiveness.

## INTRODUCING THE OPTIONS MARKET IN KUWAIT

Some forms of derivative securities exist in the Kuwaiti market. The trading of derivatives became more evident in the 1970s when forward trading was the dominant financial instrument extensively applied in the Kuwaiti over-the-counter market. Large banks in Kuwait along with other banks and large investment firms around the world employed currency and interest rate swaps. In the late 1990s, futures trading were introduced to the market. Futures contracts are traded on the Kuwait Stock Exchange (KSE), and options trading were established in 2005. However, options on stocks are currently limited to few listed companies

and with only the call option instrument being available. Recent announcements have declared that put options will be introduced.

Recent regulations have been effective in granting the foreign investor the right to invest in the Kuwaiti stock market (KSM) with defined provisions. Portfolio managers around the world are closely monitoring the KSM performance and regulatory modifications. Although local investors have reaped attractive returns throughout the past decade, international money managers are keen on allocating a portion of their international portfolios in this emerging market to optimize their efficient frontier.

Only recently, the Kuwaiti Dinar was pegged to the US dollar after previously being linked to a basket of major currencies, making it currently more stable. Pegging the Kuwaiti Dinar to the US dollar was part of a long-term mutual strategy by the GCC in an effort to establish a unified currency by 2010. However, Kuwait and Oman have abandoned their peg to the dollar and returned to the basket. Nevertheless, several announcements by the governor of the Central Bank of Kuwait have stated that Kuwait stays firm in its intention to achieve a common currency within the targeted time frame. A common currency will undoubtedly enhance the integration process within GCC markets and demonstrate the region's capacity to be an integrated economic bloc.

However, there are many investment firms that will not invest in government or corporate securities without any futures contracts being available. The reason for is the need to utilize the 'price discovery' advantage to assist investors in predicting price movement as a risk management tool. Since the inception of futures contracts in the KSE, traders in bull markets have clearly demonstrated their preference for

transacting in the cash market as opposed to the derivatives market. In 2003, the annual increase in market capitalization in the Kuwait cash market was 78 per cent, whereas the derivatives market witnessed a decline of 22.8 per cent.

Although an emerging market, the KSE has become one of the most sophisticated exchanges in the region. The exchange possesses a customized and uniquely developed computerized trading system, and its well-developed organizational structure along with its responsiveness to financial innovations makes the exchange on its way to competing with other emerging stock markets. The KSE's recent introduction to options trading is the first in the Middle East. In conjunction with the Kuwait Financial Center, the Kuwait Clearing Company and the KSE management, the 'Forsa' fund has been developed and approved for subscription in late 2004. It is an open-ended fund created by the Kuwait Financial Center to engage in various investment trading strategies, part of which include acting as a writer to call options of 13 listed underlying stocks.

Historically, local traders have demonstrated their active role in embracing promising financial tools. In the years 1977, 1982 and 1997, the Kuwaiti market observed how individual traders implicitly gave increased attention to new innovative tools, beginning with forward trading followed by the introduction of margin trading in the late 1990s. Thus, there is no doubt that with a proper educational campaign and careful planning, in addition to strict regulatory enforcement, the introduction of options contracts will enhance the possibilities of risk sharing among investors in emerging markets.<sup>3</sup> Options contracts will thus become inevitable and this will complete the derivatives

market in Kuwait. Ultimately, it will result in positive progress to financial development.

## THE ISLAMIC VIEW OF OPTIONS

The Islamic view of options has taken two forms in the last decade. Some scholars have observed options under the Al-khiyarat (contractual stipulation) perspective. Others have viewed the contracts as similar to Bai-Al-Urbun, in which the trader would pay a deposit in advance for an agreement maturing at a defined future date.

Studies that have objected to options justify their objections on the basis of several reasons. For instance, Ahmad Hasan<sup>4</sup> notes that maturity term more than three days is unacceptable and states that option buyers are given more benefits than sellers, thereby implying injustice. Further, although options are found to be acceptable, some economists think that options should be prohibited because options are completely detached from the underlying asset.<sup>5</sup> It is argued that, although the general basis for scholars' objections is that options involve 'gharar' (speculation), the expected unrealized profits 'ignore the fact that both the buyer and seller take on risk and that the buyer also has at stake the premium he has paid'.<sup>6</sup>

Mufti Taqi Usmani (also of the Fiqh Academy, Jeddah) states that when put options are viewed as a promise, they are acceptable. However, charging fees and trading them is not. On the other hand, option contracts can be related to the options of stipulation (Khiyar al-Shart) in Islamic law.<sup>7</sup> Most mathahibs (schools of Islamic thought) agree on the validity of 'khiyar al-shart'. However, different concerns have arisen with reference to time and maturity. Kamali (1997) pointed out that the 'Hanafis' and 'Shafis' specified that the options should not

exceed three days, following what the ‘hadith’<sup>8</sup> specified. On the other hand, Imam Malik has taken a flexible approach stating that three days is used figuratively to convey the concept. Moreover, Imam Ibn Hanbal points out that the length of an option should be specified with the agreement between the two parties. Imam Ibn Hanbal adds that even if the parties agree on not specifying a date, the option contract would still be valid.<sup>7</sup>

As for charging premiums on options contracts, it is found that the majority of the ulama (Islamic scholars) see premiums as unacceptable. Nonetheless, Imam Ibn Hanbal permits the charging of a fee and confirms that Omar ibn Al-Khatab and his son Abdullah ibn Omar have practiced it. In addition, followers (tabi’oon) such as Nafi’ ibn Al-Harith and Zayed ibn Aslam have reinforced its validity. It is also aligned with the accepting views of Sheikh Yusuf Al-Qaradawi and Sheikh Mustafa al-Zarqa on the authenticity of Bai Al-Urbun.

An extensive study on the legal status of Bai Al Urbun performed by Mohammed Al-Amine, states that what is paid in urbun ‘is in exchange for the right to cancel the contract and not compensation for damage’. Al-urbun could, in essence, be a substitute for conventional options as it provides investors with the flexibility of risk-reduction strategies to minimize loss before committing to large investments. By this, the loss would be limited to the initial premium paid. This is, effectively, the equivalent to call options on which the buyer pays a premium to secure the right to purchase an underlying asset at a specified future date.

However, the put option (the right to sell or the obligation to buy) has been a concern, especially when the buyer cannot meet their obligation. El-Garie proposes a framework to

remedy this concern, which is similar to ‘ijarah’ (Islamic leasing). El-Garie proposes that the ‘contract should involve the rendering of the service to a certain party’. The party suggested could be the stock exchange or a clearing house. Others suggest the involvement of a third party in which the customer could use a bank as a guarantor.<sup>9</sup>

Objections have also been documented, which argue that the underlying assets are not a commodity, implying that ‘Urbun’ contracts could not be used for intangible underlying assets such as currency, stock indices or interest rates. Other scholars have argued that the price of options is determined through interest rates, whereas several alternatives have been proposed that could bypass the link of interest rates. One states that the ‘Urbun’ market does not determine price through interest rates. It is also advocated that the alternative of options should be conducted in the primary market. Hence, another possible objection could be on the trading of ‘Urbun’ in the secondary market.

Some have refused options on the basis that they involve a future sale. Islamic law has, however, accepted the idea of ‘future sale’ such as ‘bay’il moajjal’, ‘salam’ and the ‘istis’na’. Therefore, previous objections to options, namely the ‘Urbun’ market is argued to be legitimate and compliant with Islamic Sharia. The preliminary structure suggested has the ‘Urbun’ being the alternative to call options and the reverse ‘Urbun’ being the alternative to put options.

## **FUTURE OUTLOOK ON ISLAMIC DERIVATIVE SECURITIES**

The development of a competent derivatives market and the intensification of financial

innovation have both led to continuous improvement in the structuring of derivative financial products. As observed in many developed markets, the prerequisite to today's publicly traded equity derivative products is options on common stock. Now that options on common stock have been recently regulated and implemented, it is inevitable that KSE and other Islamic financial markets will fulfill the market's demand by developing financial products that contain wide investor appeal, many of which will qualify for listing and trading, commonly known as listed equity derivatives.

The compliance of options with Islamic law will, however, be a necessity. It is advocated that Islamic financial engineers convey the concepts and benefits of derivatives properly and accurately to scholars for just judgments. It is clear that the issues that have given rise to previous concerns and objections to options can be modified and designed to comply with Islamic law. This potential market calls for further investigation and the intensification of efforts in establishing the framework of an

'Islamicly' acceptable derivatives market to manage risk in the Islamic financial market.

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