Executive Summary

• Derivatives are few and far between in Islamic countries. This is due to the fact that the compatibility of capital market transactions with Islamic law requires the development of Shariah-compliant structures that guarantee certainty of payment obligations from contingent claims on assets with immutable object characteristics. Notwithstanding these religious constraints, Islamic finance can synthesize close equivalents to conventional derivatives.

• Based on the current use of accepted risk transfer mechanisms, this article explores the validity of risk management in accordance with fundamental legal principles of Shariah and summarizes the key objections of Shariah scholars that challenge the permissibility of derivatives under Islamic law.

• In conclusion, the article also offers suggestions for the Shariah compliance of derivatives.

Types of Islamic Finance

Since only interest-free forms of finance are considered permissible in Islamic finance, financial relationships between financiers and borrowers are not governed by capital-based investment gains but by shared business risk (and returns) in lawful activities (halal). Any financial transaction under Islamic law implies direct participation in performance of the asset, which constitutes entrepreneurial investment that conveys clearly identifiable rights and obligations for which investors are entitled to receive a commensurate return in the form of state-contingent payments relative to asset performance. Shariah does not object to payment for the use of an asset as long as both lender and borrower share the investment risk together and profits are not guaranteed ex ante but accrue only if the investment itself yields income—subject to the intent to create an equitable system of distributive justice and promote permitted activities in the public interest (maslahah).

The permissibility of risky capital investment without explicit earning of interest has spawned three basic forms of Islamic financing for both investment and trade: (1) synthetic loans (debt-based) through a sale–repurchase agreement or back-to-back sale of borrower- or third party-held assets; (2) lease contracts (asset-based) through a sale–leaseback agreement (operating lease) or the lease of third party-acquired assets with purchase obligation components (financing lease); and (3) profit-sharing contracts (equity-based) of future assets. As opposed to equity-based contracts, both debt- and asset-based contracts are initiated by a temporary (permanent) transfer of existing (future) assets from the borrower to the lender or the acquisition of third-party assets by the lender on behalf of the borrower.

“Implicit Derivatives” in Islamic Finance

From an economic point of view, the “creditor-in-possession”-based lending arrangements of Islamic finance replicate the interest income of conventional lending transactions in a religiously acceptable manner. The concept of put–call parity illustrates that the three main types of Islamic finance outlined above represent different ways of recharacterizing conventional interest through the attribution of economic benefits from the ownership of an existing or future (contractible) asset by means of an “implicit derivatives” arrangement.

In asset-based Islamic finance, the borrower leases from the lender one or more assets A valued at S, which have previously been acquired from either the borrower or a third party. The lender allows the borrower to (re-)gain ownership of A at time T by writing a call option #C(E) with time-invariant strike price E subject to the promise of full repayment of E (via a put option +P(E)) plus an agreed premium in the form of rental payments over the investment period. This arrangement amounts to a secured loan with fully collateralized principal (i.e. full recourse). The present value of the lender’s ex ante position at maturity is \( L = S # C(E) + P(E) = PV(E) \), which equals the present value of the principal amount and interest of a conventional loan. In a more realistic depiction, this put–call combination represents a series of cash-neutral, maturity-matched, risk-free (and periodically extendible) synthetic forward contracts.
Risk Management of Islamic Finance Instruments

over a sequence of rental payment dates $t$. By holding equal and opposite option positions on the same strike price at inception, there are no objectionable zero-sum gains or uncertainty of object characteristics and/or delivery results. Overall, the put–call arrangement of asset-based Islamic lending implies a sequence of cash-neutral, risk-free (forward) hedges of credit exposure. Since poor transparency of $S$ in long-dated contracts could make the time value of $+P(E)$ appear greater than its intrinsic value, long-term Islamic lending with limited information disclosure would require a high repayment frequency to ensure efficient investor recourse. In debt-based Islamic finance, borrower indebtedness from a sale–repurchase agreement (“cost-plus sale”) of an asset with current value $PV(E)$ implies a premium payment to the lender for the use of funds over the investment period $T$ and the same investor payoff $L$. In Islamic profit-sharing (equity-based) agreements, the lender receives a payout in accordance with a pre-agreed disbursement ratio only if the investment project generates enough profits to repay the initial investment amount and the premium payment at maturity $T$. Since the lender bears all losses, this equity-based arrangement precludes any recourse in the amount $+P(E)$ in the absence of enforceable collateral.

“Explicit Derivatives” and Shariah-Compliant Risk Management

Amid weak reliance on capital market financing in many Islamic countries, risk transfer mechanisms are subject to several critical legal hindrances that impact on the way derivatives redress perceived market imperfections and financing constraints. Although “implicit derivatives” in the form of synthetic forward contracts (see above) are essential to profit generation from temporary asset transfer or profit-sharing in Islamic finance without creating the potential of unilateral gains, and thus are not deemed objectionable on religious grounds, the explicit use of derivatives remains highly controversial (Jobst, 2008b).

While “explicit derivatives” remain few and far between in Islamic finance, the implicit forward element of Islamic lending contracts, like forwards in conventional finance, involves problems of double coincidence and counterparty risk due to privately negotiated customization. Parties to forward agreements need to have exactly opposite hedging interests, which inter alia coincide in the timing of protection sought against adverse price movements and the quantity of asset delivery. Moreover, forward contracts elevate the risk of one counterparty defaulting when the spot price of the underlying asset falls below the forward price prior to maturity, rendering the contract “out-of-the-money” and making deliberate default more attractive.

Although the premise of eliminating these risks is per se desirable under Islamic law, the assurance of definite performance through either cash settlement (in futures) or mutual deferment (in options) as in conventional derivatives contracts is clearly not, as it supplants the concept of direct asset recourse and implies a zero-sum proposition (Usmani, 1999). Instead, in Islamic finance, the bilateral nature and asset-backing ensure definite performance on the delivery of the underlying asset (unlike a conventional forward contract). By virtue of holding equal and opposite option positions on the same strike price, both creditor and debtor are obliged to honor the terms of the contract irrespective of changes in asset value. Unlike in conventional options, there are no objectionable gains from favorable price movements (e.g. “in-the-money” appreciation of option premia) in the range between the current and the contractually agreed repayment amount. Any deviation of the underlying asset value from the final repayment amount constitutes shared business risk (in an existing or future asset).

Shariah scholars take issue with the fact that futures and options are valued mostly by reference to the sale of a nonexistent asset or an asset not in the possession (qabd) of the seller, which negates the hadith “sell not what is not with you.” Shariah principles, however, require creditors (or protection sellers) to actually own the reference asset at the inception of a transaction. Futures and options also continue to be rejected by a majority of Islamic scholars on the grounds that “…in most futures transactions delivery of the commodities or their possession is not intended” (Usmani, 1996). Derivatives almost never involve delivery by both parties to the contract. Often parties reverse the transaction and cash-settle the price difference only, which transforms a derivative contract into a paper transaction without the element of a genuine sale. Given the Islamic principle of passimissibility (ibahah), which renders all commercial transactions Shariah-compliant in the absence of a clear and specific prohibition, current objections to futures and options constitute the most discouraging form of religious censure (taqlid).
Besides the lack of asset ownership at the time of sale, other areas of concern shared by Islamic scholars about Shariah compliance of derivatives have centered on: the selection of reference assets that are nonexistent at the time of contract; the requirement of *qabd* (i.e. taking possession of the item prior to resale); mutual deferment of both sides of the bargain, which reduces contingency risk but turns a derivative contract into a profitable sale of debt; and excessive uncertainty or speculation that verges on gambling, resulting in zero-sum payoffs of both sides of the bargain (Mohamad and Tabatabaei, 2008; Kamali, 2007; Khan, 1991).

Although Khan (1995) concedes that “some of the underlying basic concepts as well as some of the conditions for [contemporary futures] trading are exactly the same as [those] laid down by the Prophet [Mohammed (sallallâhu ‘alayhi wasallam)] for forward trading," he also acknowledges the risk of exploitation and speculation, which belie fundamental precepts of Shariah. For the same reasons, several scholars also consider options in violation of Islamic law. Nonetheless, Kamali (2001) finds that “there is nothing inherently objectionable in granting an option, exercising it over a period of time or charging a fee for it, and that options trading like other varieties of trade is permissible *mubah*, and as such, it is simply an extension of the basic liberty that the Qur’an has granted.”

However, so far only a few explicit derivative products have been developed by various banks for managing currency and interest rate risk. While recent innovation in this area has focused mostly on highly customized option contracts as well as commodity hedges, cross-currency swaps and so-called “profit-rate swaps” constitute the most widely accepted forms of newly established Shariah-compliant derivatives (see next section). Given the prohibition of interest income and the exchange of the same assets for profit (which includes the cost-plus sale of debt), for Islamic investors to execute a swap both parties instead agree to sell assets, usually commodities, to each other for deferred payment. In the case of cross-currency swaps, the contractual parties exchange commodities in the form of a cost-plus sale and settle their mutual payment obligations in different currencies according to a predefined installment schedule.

Nonetheless, governance issues—especially Shariah compliance of products and activities—constitute a major challenge for the Islamic finance industry in general and risk management in particular. Although Shariah rulings (*fatwas*) (and their underlying reasoning) are disclosed, there are currently no unified principles (and no precedents) on the basis of which Shariah scholars decide on the religious compliance of new products. *Fatwas* are not consolidated, which inhibits the dissemination, adoption, and cross-fertilization of jurisprudence across different countries and schools of thought. Therefore, the fragmented opinions of Shariah boards, which act as quasi-regulatory bodies, remain a source of continued divergence of legal opinion. In particular, there is considerable heterogeneity of scholastic opinion about the Shariah compliance of derivatives, which testifies to the general controversy about risk management in Islamic finance. In particular, it underscores the difficulties of reconciling financial innovation and greater flexibility in the principled interpretation of different modes of secondary sources supporting religious doctrine—i.e. analogous deduction (*qiyaṣ*), independent analytical reasoning (*ijtihad*), and scholarly consensus (*ijma*).

Recent efforts of regulatory consolidation and standard-setting have addressed the economic constraints and legal uncertainty imposed by both Islamic jurisprudence and the poorly developed uniformity of market practices. Private sector initiatives, such as an Islamic primary market project led by the Bahrain-based International Islamic Financial Market (IIFM) in cooperation with the International Capital Markets Association (ICMA), have resulted in the adoption of a memorandum of understanding on documentation standards and master agreement protocols for Islamic derivatives. Also, national solutions are gaining traction. In November 2006, Malaysia’s only fully fledged Islamic banks, Bank Islam Berhad and Bank Muamalat Malaysia Berhad, agreed to execute a master agreement for the documentation of Islamic derivative transactions (Jobst, 2007 and 2008a). Therefore, market inefficiencies and concerns about contract enforceability caused by heterogeneous prudential norms and diverse interpretations of Shariah compliance are expected to dissipate in the near future.

**Islamic Swap Transactions: Cross-Currency and Profit-Rate Swaps**

Shariah-compliant swap transactions are traded bilaterally and combine opposite, maturity-matched *murabaha* contracts with instantaneous (or periodic) transfer of similar assets and delayed payment of the sales price (inclusive of a premium payment for the use of the asset until the maturity date).4
Islamic cross-currency swap

Islamic cross-currency swaps (CCS) debuted only recently when Standard Chartered executed the first ever swap transaction of this kind for Bank Muamalat Malaysia in July 2006. The basic structure of a CCS matches two commodity *murabaha* sale contracts that generate offsetting cash flows in opposite currencies with maturities desired by the contracting parties.

The following example illustrates the functioning of a CCS (see Figure 1). Consider the case of a Malaysia-based Islamic bank that raises revenue in Malaysian ringgit but faces payments in US dollars over a certain period of time. To eliminate this foreseeable currency mismatch, the bank could substitute its future outflows in US dollars for outflows in Malaysian ringgit by entering into a CCS with a US dollar-paying counterparty. Under this contract, the Malaysia-based Islamic bank purchases an amount of commodity A on a *murabaha* basis (i.e. against future installments) denominated in Malaysian ringgit. Simultaneously, an Islamic bank based in a Gulf Cooperation Council (GCC) country buys an amount of commodity B, also under a *murabaha* agreement but denominated in US dollars. By combining the two *murabaha* contracts, each denominated in a different currency, each party will be able to receive cash flows in the desired currency. Finally, both banks sell their respective commodities in order to recoup their initial expense, where the fair value of each commodity (A and B) should wash out at the prevailing exchange rate.

If the parties wanted to hedge term risk (i.e. the risk of the fair market values of the exchanged assets diverging over the life of the transaction), either in addition to the cross-currency swap or as a separate transaction, they would enter into a profit-rate swap. In this Islamic version of an interest-rate swap, the two sides exchange periodic fixed-rate for floating-rate payments. After selling a designated commodity to the protection seller, the protection buyer receives periodic fixed-rate payments in return for floating-rate installments.

Islamic profit-rate swap (PRS)

This instrument, pioneered by Commerce International Merchant Bank (CIMB) of Malaysia in 2005, allows financial institutions to manage their exposures to fixed and floating rates of return. That is, through the PRS, institutions can restructure the nature (fixed vs. floating) of their existing rates of return. As in the CCS, profit-rate swaps are based on the combination of two commodity *murabaha* contracts (see Figure 2).
floating-rate leg involves the periodic murabaha sale of a commodity by the protection seller in exchange for future installments at the fair value (market) price plus a floating-rate profit portion ("cost-plus") that varies according to changes in some pre-agreed benchmark (e.g. some interbank funding rate like the London or Kuala Lumpur Interbank Offering Rate). The fixed-rate leg stipulates the one-off sale of a commodity by the protection buyer in exchange for a stream of future predetermined payments. As in the cross-currency swap, both parties may sell their commodities in order to recoup their initial disbursement. Note that the floating-rate payer (or interest rate protection buyer) purchases commodity B in periodic increments—unlike the fixed-rate payer (or interest rate protection seller), who receives commodity A in full at inception.

Attempts to design other Shariah-compliant derivatives, such as total return swaps, have been mired in controversy. One particularly contested structure is based on a dual wa’ad (or promise) contract, which swaps the returns of a Shariah-compliant asset portfolio with those of a designated index or reference investment portfolio, which can contain conventional assets. This Islamic total return swap would allow investors to access returns from assets that are prohibited under Shariah principles. DeLorenzo (2007) has argued that, in practice, this swap structure does not conform to Shariah norms, because the returns from the alternative portfolio are not derived from religiously acceptable activities.

Making It Happen

Possibilities for establishing Shariah compliance of derivatives and risk management

The heterogeneity of scholastic opinion about the Shariah compliance of derivatives is largely a reflection of individual interpretations of Shariah and different knowledge of the mechanics of derivative structures and risk management strategies. Many policymakers, market participants, and regulators are unfamiliar with the intricate mechanics and highly technical language of many derivative transactions, which hinder a more comprehensive understanding and objective appreciation of the role of derivatives in the financial system and their prevalence in a great variety of business and financial transactions. Risk diversification through derivatives contributes to the continuous discovery of the fair market price of risk, improves stability at all levels of the financial system, and enhances general welfare.

In principle, futures and options may be compatible with Islamic law if they (1) are employed to address a genuine hedging demand on asset performance associated with a direct ownership interest, (2) disavow mutual deferment without actual asset transfer, and (3) eschew avertable uncertainty (gharar) as prohibited sinful activity (haram) in a bid to create an equitable system of distributive justice in consideration of the public interest (maslahah). Shariah-compliant derivatives would also maintain risk sharing that favors win–win situations from changes in asset value. For instance, the issuance of stock options to employees would be an ideal candidate for a Shariah-compliant derivative. By setting incentives for higher productivity, firm owners reap larger corporate profits that offset the marginal cost of greater employee participation in stock price performance. However, the de facto application of many derivative contracts is still objectionable due to the potential of speculation (or deficient hedging need) to violate the tenets of distributive justice and equal risk sharing subject to religious restrictions on lending and profit-taking without real economic activity and asset transfer.

More Info

Books:


Articles:

- Usmani, Maulana Taqi. “Futures, options, swaps and equity investments.” *NewHorizon* no. 59 (June 1996): 10. (*NewHorizon* is the magazine of the London-based Institute of Islamic Banking and Insurance.)

Reports:


Notes

1. The relation between the put and call values of a European option on a nondividend-paying stock of a traded firm can be expressed as $PV(E) + C = S + P. PV(E)$ denotes the present value of a risky debt with a face value equal to exercise price $E$, which is continuously discounted by $\exp(-rT)$ at a risk-free interest rate $r$ over $T$ years. In our case of a lending transaction, the share price $S$ represents the asset value of the funded investment available for the repayment of terminal value $E$.

2. The lease payments received from the borrower wash out in this representation.

3. However, some debt-based financing with deferred payment of future claims on existing assets (salam), predelivery finance for future assets (istikna), or the deferred cost-plus sale of a third party-held asset imply counterparty and market risks from lost recovery value, which could translate to a lower strike price $F$ on the call or put option respectively.

4. The degree of collateralization of each leg of the swap depends on the original ownership of the transferred asset (or, in this case, the exchanged commodities), defining the level of creditor indebtedness. In the standard *murabaha* sales contract, the creditor has either full recourse to the underlying asset and periodic payments (in a sale–repurchase agreement at an initially discounted sales price (cost-plus sale)), or limited recourse to periodic payments only (in a back-to-back cost-plus sale of an asset which the seller acquired previously from a third party). In a *murabaha*-based swap transaction the restrictions on recourse apply, even though both contract parties hold mutually offsetting payment obligations against each other, preventing speculative interest and mitigating the contingency risk of periodic payments.

5. This includes full payment and physical settlement in each period. This structure was pioneered by the Commerce International Merchant Bank (CIMB) of Malaysia in 2005.

See Also

Best Practice

- Identifying the Main Regulatory Challenges for Islamic Finance
• Islamic Capital Markets: The Role of Sukuk
• Islamic Insurance Markets and the Structure of Takaful
• Islamic Modes of Finance and the Role of Sukuk
• Procedures for Reporting Financial Risk in Islamic Finance

Checklists
• Key Islamic Banking Instruments and How They Work
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Finance Library
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