

Value Preservation Through Risk Management. A Shariah Compliant Proposal For Equity Risk Management

Obiyathulla Ismath Bacha

International Islamic University, Malaysia

August 2004

Abstract

This paper makes a case for the preservation of Muslim Wealth through risk management. It provides an exposition of risk management techniques used in conventional finance and outlines the limitations faced by Muslim fund managers and businesses. This limitation arises from the proscription of key risk-management tools, in particular financial derivatives. Though the reasons for the prohibition are diverse, the overriding concern appears to be that they encourage speculative behaviour. As such the emphasis of Islamic risk management has been on, On Balance Sheet methods. The problem with On Balance Sheet methods is that they require the restructuring of business transactions which can render businesses less competitive and subject to residual risk. The paper proposes a portfolio insurance scheme that uses the logic and mechanics of conventional Index Put Options but in a Shariah compliant manner. The proposal is intended to strike a balance between the need to avoid speculation and the genuine need for hedging equity risks.

Management Center
Kulliyah of Economics & Management Sciences
International Islamic University Malaysia
Jalan Gombak, 53100 Kuala Lumpur, Malaysia
Tel : (6 03 20564188), Fax : (6 03 20564856)
E-Mail : obiya@iiu.edu.my

Keywords : Risk Management, Shariah Compliant, Equity Risk
JEL Classification : D81, G20, Z12

SECTION 1 : Introduction

If there is one key feature that has an equal presence in both the Islamic and Conventional Financial System, it must be the presence of Risk. While much has been done in conventional financial markets to both tame and minimize risk, the same cannot be said of Islamic capital markets. This lack of attention to the management of risk has meant that players in Islamic Capital Markets have little by which to ensure the preservation of their wealth. Islamic businesses and mutual funds are therefore often left to take the brunt of the exposures that arise in their operating environments. One could cite several reasons for this lack of attention to the management of risk and the consequent preservation of value. First and foremost is perhaps the lack of appreciation, in particular among the jurist, of the need to manage risk. A second reason, could be the suspicion of most *Shariah* scholars to conventional risk management tools, most of which are financial derivatives. Yet another reason could be attributed to the argument that according to the *Shariah*, in order to avoid *riba* and justify a return one must either expend effort or have taken on risk.

While this inadequacy may not have been a serious constraint when a capital market is still small, the ability to manage the risks that arise from business transactions becomes critical as the market develops. The ability to innovate new techniques and instruments to manage the risks endemic of capital markets determines whether a market goes on to a subsequent phase of development or remains under-developed. Players must have the ability to keep the level of risk they deem acceptable and lay off or reduce any risk beyond this preferred level. Since risk preference differs among investors, well functioning capital markets must have the means by which to shift these risks. An inability to dissipate risk through redistribution leads to risk concentration which in turn renders capital markets and their financial systems vulnerable. Islamic

Capital Markets, now in their development stage must grapple with the issue of risk management if they are to develop further. This will be particularly true for economies where Islamic Capital Markets are envisaged to take center stage.

The objectives of this paper are threefold. The first, is to make a case for risk management and to show that continued negligence can be inimical to the future development of Islamic Capital Markets. The second objective is to provide an exposition of the key risk management techniques used in conventional finance and show how proscribing these techniques/instruments can be hugely disadvantageous to Muslim investors. The third objective of this paper is to propose a risk management alternative that uses the logic of proscribed derivatives, to manage equity risks.

This paper is divided into five sections. Section 2 below, introduces key risk categories, defines risk management and outlines common conventional risk management techniques. Section 3, discusses the stand of Shariah scholars on the use of financial derivatives, which are typically the building blocks of conventional risk management. Section 4, lays out the proposed alternative arrangement for managing equity risks. The final section, Section 5 concludes.

SECTION 2 : Risks and Value Preservation through Risk Management

Risk from a conventional finance viewpoint, refers to the uncertainties associated with returns from an investment. These uncertainties would translate into volatility or the fluctuation of the expected returns from an investment. Since, fluctuation of returns is dispersion around a mean, the commonly accepted measure of risk is standard deviation (σ). Thus, unless an asset comes with “guaranteed” fixed future returns, it has some amount of uncertainty and therefore risk. Infact, even a “guaranteed” instrument such

as a government bond has risks if either the issuer's credit worthiness is questionable or other externalities like inflation is present. In a sense, there is really no such a thing as a truly risk-free asset. Risk is ever present in capital markets. Risk management, refers to the process/techniques employed in reducing the risks faced in an investment. It generally involves three broad steps;

- (i) Identifying the source and type of risk.
- (ii) Measuring the degree or extent of the risk.
- (iii) Determining the appropriate response or methods to be used.

While numerous risk management techniques are possible, these can generally be categorized into two broad methodologies, i.e. the use of on balance sheet or off balance sheet methods. The first refers to the process of restructuring business transactions in a way that will minimize asset-liability mismatches in the balance sheet. The latter refers to the use of external, usually exchange traded derivatives to offset risks that arise from a business transaction. Since the use of derivatives is external to the transaction, these positions have no impact on the operational assets or liabilities of the firm and so do not show up in the balance sheet. However, since exchange traded derivatives are standardized, highly liquid, have low transaction costs and do not involve changing existing business methods, managing risk by means of off balance sheet methods are by far more popular in conventional systems.

What makes risk management challenging is the fact that risks and returns are generally positively correlated. In reducing risk one invariably has to sacrifice potential returns. Thus, the risk-return tradeoff. The challenge is to protect the expected returns while simultaneously reducing or laying off the risks.

2.1: Types of Risks & Hedging

Numerous types of risks are prevalent in capital markets. The more common of these are (i) *market/price risk*, which refers to changes in returns caused by changes in market prices of the asset, (ii) *inflation risk*; which refers to the erosion in purchasing power (iii) *interest rate risk* can be either in the form of a change in asset prices arising from interest rate changes or as a change in the cost of funds/capital, (iv) *default/credit risk* which arises when a debtor is unable to meet its obligations, (v) *liquidity risk*, the risk that arises from infrequent or thin trading of an asset, and finally, (vi) *currency/foreign exchange risk*, refers to the potential losses that can result when the exchange rate of a currency to be received falls in value against home currency or a foreign currency in which a payment is to be made appreciates against home currency.

In addition to these types of exposures or risks that may arise directly from having undertaken a transaction, one could also face indirect risks. For example, a bank with solely domestic activities may not have direct foreign exchange exposure but could have extensive indirect forex exposure through its clients.

In a narrow sense, risk management, can be thought of as hedging. Hedging is quite simply the process of protecting one's investment value by establishing a hedge transaction which has a risk profile exactly the opposite of the original exposure. The basic idea being, to offset the volatility in the underlying asset with that of the hedge position. Since price movements in the two positions exactly offset one another, a fully hedged position would have zero fluctuation and therefore zero (or negligible) standard deviation.

Having outlined risk management, types of risks and hedging, the remainder of this section will examine indepth, two key risks in capital markets, (i) equity (price) risk and currency/foreign exchange risk. We will examine what these risks are, how they impact the value of one's assets and what techniques are available to manage these risks in conventional systems. This will be followed by a discussion of which of these techniques are shariah compliant and would therefore be useable in preserving Muslim wealth.

2.2: Equity Risk and its Management

Going by our earlier definition of risk as volatility/fluctuation. Fluctuations in equity prices cause volatility of equity returns and thereby hurts wealth creation. The most basic form of equity risk management is *diversification*. Diversification refers to the expansion of a portfolio across different assets or stocks in order to reduce risk; i.e., portfolio standard deviation. The reason portfolio standard deviation reduces with the mere inclusion of additional shares has to with correlation. Since no two assets are likely to have a perfectly positive correlation, the inclusion of even a randomly selected stock reduces portfolio standard deviation. Diversification however has its limits. Even a fully diversified portfolio does not reduce risk to zero, but has residual risk known as; *systematic risk*.

No amount of further diversification across stocks in a given market (country) can reduce the systematic risk. Further reduction in systematic risk is only possible with international diversification. This however, leads to the creation of yet other risks. As we will see shortly, the advent of financial derivatives has dramatically changed this limitation.

Asset Allocation

A second basic form of equity risk management is asset allocation. Asset allocation is usually intended to change portfolio composition according to market outlook. Though intended largely to take advantage of expected market movements, the fact that it changes portfolio risk profiles, implies that asset allocation too can be a form of equity risk management. Like diversification however, asset allocation too has its limits. In some ways, asset allocation is betting on market movements. And, like all expectation plays, it can be hazardous. A fund manager has to get both the timing and stock selection correct.

2.3: Equity Derivatives

Whereas the two basic strategies, **diversification and asset allocation** were limited in scope, the advent of derivative instruments brought a whole new range of possibilities to risk management. Not only did it become possible to overcome the limitations of the basic strategies, but entire new strategies to alter risk profiles became possible. **Using equity derivatives, one could lock-in expected values and thereby avoid volatility, establish positions to take advantage of volatility or combine the two to both lock-in base values while simultaneously taking advantage of volatility.** The most commonly used equity derivatives in risk management have been Stock Index Futures contracts and index/equity options.

2.3.1: Stock Index Futures Contracts (SIF)

In using SIF contracts two new possibilities opened up for risk managers. First, was the ability to manage overall equity exposure and second, the ability to further reduce systematic risk.

Systematic risk, which is the residual risk that remains even with full diversification, becomes manageable with SIF contracts. Suppose a portfolio manager, given a bearish short term outlook intends to reduce by half the systematic risk of his portfolio, the hedge would be to combine his portfolio with *a short position in SIF contracts equivalent to half his portfolio value*. If a 3 month SIF contract is used for the purpose, the portfolio's systematic risk is halved for the 3 month period of the hedge. *Following expiry of the SIF contracts, the systematic risk returns to its prior level. Thus, SIF contracts not only enable one to change the risk profile of a equity portfolio, but to do so as and when desired.*

In the absence of SIF contracts, changing portfolio composition to reduce systematic risk is a very difficult process. It is time consuming, iterative and expensive. With SIF contracts, hedging such risk becomes easy and inexpensive.

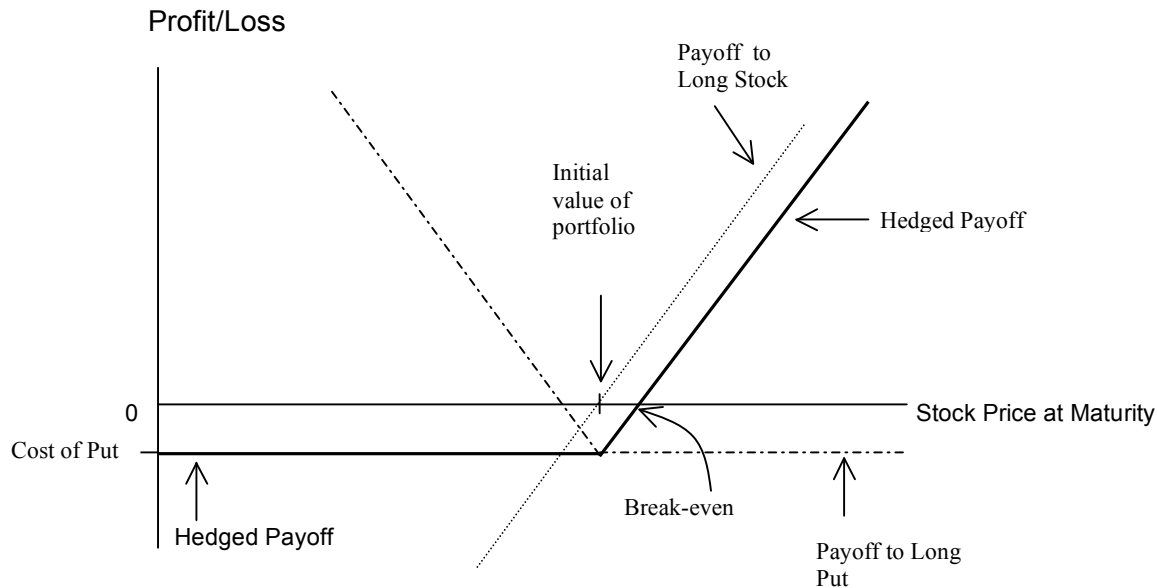
When one wants to manage the overall equity exposure, SIF contracts can be used to *“lock-in”* the value of an existing portfolio. This is classic wealth preservation. One manages equity risk by hedging the current portfolio using SIF contracts to lock-in a value *regardless* of underlying market movement. Such a hedge is established by shorting an amount of SIF Contracts adjusted for the portfolio's systematic risk *or beta*. This combined portfolio of short futures and the original stock position, preserves overall value because any diminution in the value of stocks *should* be offset by profits on the futures position. A fully hedged position such as this reduces equity price risk to zero but does not have zero returns. Since the overall combined position is risk free, it mimics a riskless asset and therefore has earnings equal to the risk-free rate of return. *In a sense, the combined long stock, short SIF position synthesizes a long Treasury bill position.* Thus, not only do we not lose anything when the market falls, we *add* an

amount approximating the risk free rate to the original value of our wealth. Furthermore, since one can easily replicate a long treasury bill position using SIF contracts, asset-allocation strategies too become easier and a lot cheaper with SIF contracts.

2.3.2: Equity Options/Index Options

Unlike SIF contracts that 'lock in' a portfolio value, the advent of equity / index options has meant that risk-management need not just be about risk reduction. Using options, it becomes possible to simultaneously reduce risk while also keeping the upside profit potential intact. This inherent flexibility has meant that options have become a key tool in equity risk management. Though numerous option based strategies are possible, the most popular where equity risk management is concerned is known as **Portfolio Insurance**. Portfolio Insurance involves the use of put options in order to hedge equity risk. Portfolio managers would use index put options to *limit downside risk while keeping intact upside potential*. A portfolio insurance strategy therefore provides both downside protection and upside potential. This is the value added of using options over futures. Figure 1 below shows the payoff profile to a typical portfolio insurance strategy.

Figure 1
Payoff Profile to Portfolio Insurance



The hedged payoff represented by the bold line shows how the strategy limits downside risk while keeping upside potential intact. The maximum loss to the strategy would be the total premium paid for the purchase of at-the-money puts. The upside profit potential equals portfolio value beyond its initial value less the premiums paid. Note that the hedged payoff replicates that of a long call position. In both the portfolio insurance and the earlier strategy using SIF contracts, the risk manager uses derivatives to *financially engineer* a different desired risk profile.

2.4: Alternatives For Islamic Portfolio Managers

The above illustrations showed how the impact of downside risk to equity portfolios can be muted by use of financial derivatives. It should be noted that aside from the above portfolio insurance strategies numerous other trading strategies to fit different market scenarios are possible with derivatives. However, as things now stand, with the exception of the most basic risk management tools; diversification and asset allocation, none of the other techniques are currently available to managers of Islamic portfolios. Recall that diversification only helps up to a point. With most global equity

markets having fallen on average close to 40% over the last 3 years, even fully diversified stock portfolios would have fallen as much. The limitation of asset allocation strategy is that it requires managers to make a call on future market movements. Empirical studies have shown that active asset allocation strategies seldom outperform over the long term. So, what can an Islamic fund manager do to preserve the value of his portfolio and the wealth of his Muslim investors? The answer, as it stands now is very little!

2.5: Currency / Exchange Rate Risk

If there are serious handicaps to Islamic equity managers, a similar situation prevails for the Muslim firm facing currency or exchange rate risk. Given the systematic nature of currency risk, an Islamic firm engaged in international trade is just as exposed as non Islamic ones. Value destruction happens with currency exposure, when a receivable foreign currency depreciates or a foreign currency in which a payable has to be made, appreciates. It is in the area of currency risk management that most of the innovation in risk management has occurred. As in the case of all exposures, currency risk can be managed by either on or off Balance Sheet methods. The easier and by far more popular method is to use off Balance Sheet techniques using currency derivatives. The table below summarizes the appropriate hedge position for the four most popular currency derivatives.

Hedge strategies with common Currency Derivatives

Currency Derivative	To Protect Against Currency	
	Appreciation	Depreciation
□ Forwards	Long	Short
□ Swaps	Long	Short
□ Futures	Long	Short
□ Options	Long Call	Long Put

While the above methods simply involve buying or establishing the appropriate position in mostly exchange traded derivatives without the need to change the underlying foreign currency transaction, the on balance sheet methods described below require either a restructuring of the original underlying transaction or using customized techniques. Among the more common customized techniques to managing currency risk are as follows:

- (i) **Exposure Netting;** Involves the creation of an offsetting exposure in the foreign currency. For example, if we are to receive a payment in Japanese ¥en in the future, we hedge by creating a ¥en payable for the same amount and maturity. This essentially means buying something in Japan for the amount of our receivable on an equal credit term.
- (ii) **Pricing Strategy;** Here we hedge the potential exchange rate loss by marking up the price we quote for a foreign currency denominated transaction.
- (iii) **Money Market Hedge;** Involves the use of simultaneous borrowing and lending in two different currencies in order to 'lock-in' the home currency value of the underlying transaction. For example, to hedge a foreign currency receivable, we borrow in the foreign currency, convert to home currency at the spot rate and immediately deposit it in a domestic bank for a tenor equal to the receivable period. The amount borrowed in foreign currency should equal the present value of the receivable.

- (iv) **Currency Risk Sharing Agreement (CRSA)**; is an agreement under which the two parties agree to carry out a transaction at an exchange rate that splits the profit/loss for large exchange rate movements. The sharing takes place for spot rates that fall outside a predetermined “neutral zone”.

In contrast to the hedging techniques that use derivative instruments, the customized on Balance Sheet techniques, are usually more difficult to establish and have serious inadequacies. Exposure netting is easier said than done. Often there isn't anything suitable that a company can buy in the foreign country in order to create the liability. Worse, other risks are often created in the process. The use of Pricing strategy has the serious downside that it would render the firm uncompetitive. Particularly, against non Muslim businesses that can easily use derivatives to hedge at much lower/negligible costs. Yet, given the current state of affairs, the only exchange rate risk management techniques available for Islamic fund managers/businesses, would be customized hedges such as CRSA and Exposure Netting. The problem here is that the underlying transaction itself has to be restructured. Unless the foreign customer is encumbered in some way, they could easily take their business elsewhere.

SECTION 3 : Risk Management & Islamic Finance the Current State of Affairs

If there is one conclusion that we can draw from our discussion, it is that, Muslim businesses face the same risk exposures that conventional ones do. Yet, the alternatives available to them to manage these risks are severely limited. The limitation arises from the fact that current thinking among Islamic jurists seems to be that while customized methods are acceptable, the use of exchange traded (standardized) instruments such as derivatives should be disallowed. Such a stand has two implications on the preservation of value and wealth creation of Muslim businesses.

First, it keeps them vulnerable to value loss and second, renders them less competitive. In a zero sum world, if we imagine two firms trading with each other, if one side is able to fully hedge while the other is unable to, losses incurred by one will constitute the gains to the other. Wealth is being transferred from the unhedged to the hedged. Over time, this can have disastrous consequences on Muslim wealth creation.

While an evaluation of fatwas on derivatives is beyond the scope of this paper and is not the intention here, an overview of the current stand would be useful in the context of our discussion. As any student of Islamic finance would agree, the jury is still out as far as a definitive opinion on derivatives is concerned. The validity and permissibility of these instruments appears to vary by scholar/jurists. Even where Islamic scholars have found them objectionable, their reasons for objection differs. There does not appear to be a consensus. Much of the work by Islamic scholars has been of a highly juridical nature. They examine derivatives within narrow confines of contractual arrangements and thereby miss the broader picture of why instruments like futures and options are needed in modern business environments. The table below provides a sampling of some of the opinions of Islamic scholars.

Opinion on Exchange Traded Futures

Source	Summary of Opinion
<i>Fatwa of Omam Al-Haramaini Al-Jauwaini</i>	Futures Trading is Halal if the practice is based on <i>Darurah</i> and the Needs or <i>Hajaat</i> of the Ummah.
<i>Syariah Advisory Council (SAC) of Securities Commission, Malaysia</i>	<ul style="list-style-type: none"> ❑ Futures trading of commodities is approved as long as underlying asset is halal. ❑ Crude Palm Oil Futures Contracts are approved for trading. ❑ For Stock Index Futures (SIF) contract, the concept is approved. <p>Thus, it implies that a Stock Index Futures contract of a halal index would be acceptable.</p>
<i>Ustaz Ahmad Allam; (Islamic Fiqh Academy – Jeddah, 1992)</i>	<ul style="list-style-type: none"> ❑ Stock Index Futures (SIF) trading is Haram, since some of the underlying stocks are not halal. ❑ Until and unless the underlying asset or basket of securities in the SIF is all Halal; SIF trading is not approved.
<i>Mufti Taqi Usmani (Fiqh Academy – Jeddah)</i>	<ul style="list-style-type: none"> ❑ Futures transactions not permissible, for two reasons: <ul style="list-style-type: none"> (i) According to Syariah, sale or purchase cannot be affected for a future date. (ii) In most futures transactions delivery or possession is not intended.

Opinion on Exchange Traded Options

Source	Summary of Opinion
<p><i>Ahmad Muhayyuddin Hassan</i></p>	<ul style="list-style-type: none"> ❑ Objects to option trading for 2 reasons <ul style="list-style-type: none"> (i) Maturity beyond three days as in-khiyarat is not acceptable. (ii) The buyer gets more benefits than the seller, this constitutes injustice.
<p><i>Abu Sulayman (Fiqh Academy – Jeddah, 1992)</i></p>	<ul style="list-style-type: none"> ❑ Acceptable when viewed in the light of bai-al-urbun but considers options to have been detached and independent of the underlying asset – therefore : unacceptable.
<p><i>Mufti Taqi Usmani (Fiqh Academy – Jeddah)</i></p>	<ul style="list-style-type: none"> ❑ Promises as part of a contract is acceptable in Shariah, however the trading and charging of a premium for the promise is not acceptable. <p>Yet others have argued against options by invoking “maisir” or unearned gains. That is, the profits from options may be unearned.</p>
<p><i>Hashim Kamali (1998, International Islamic University, Malaysia)</i></p>	<ul style="list-style-type: none"> ❑ Finds options acceptable <ul style="list-style-type: none"> i. Invokes the Hanbali tradition, cited Hadiths of Barira (RA) and Habban Ibn Munqidh (RA). ii. Also draws parallels with the al-urbun in arguing that premiums are acceptable. iii. Cites that contemporary scholars such as Yusuf al-Qaradawi and Mustafa al-Zarqa have authenticated al-urbun.
<p><i>Shariah Advisory Council (SAC) Securities Commission, Malaysian</i></p>	<ul style="list-style-type: none"> ❑ No formal opinion on options. The fact that there are no equity options, only index options available currently has meant that there is no urgency. Index options are disallowed based on the argument that some of the stocks in the KLSE CI are non-halal. ❑ However, the SAC has approved as halal, the trading of Warrants/TSRs as long as the underlying stock is designated as a halal stock. <p><i>(Note that warrants as traded in Malaysia are essentially long-dated Call options. They have exactly the same payoff profile as Calls).</i></p>

The fractions nature of the debate and opinions is obvious. It appears that any number of objections could be made for a given derivative instrument. The object of juridical analysis appears to be a micro examination of each and every feature of a derivative instrument to see if it passes, a often subjective religious filter. The overall intended use of the instrument nor the societal benefits that could accrue do not seem to have been given due consideration. Aside from individual interpretation, the differing opinions among mazhabs / imams complicates the situation further. Thus, an option contract may be found objectionable for exactly opposite reasons. For example, when seen from the viewpoint of subject of sale (mahal al aqd), the subject of sale in options are rights / obligations which some like Abu Sulayman (1992) find objectionable. The thinking being that, rights / obligations are different (detached) from the underlying asset. When seen solely as conferring rights / obligations, options are indeed different from their underlying asset. Based on this line of reasoning, while the sale / purchase of assets are entirely acceptable, prohibition is based on the fact that transactions in abstract things like rights and obligations are not recognized in the sharia.

On the other hand, if options as derivatives are considered attached to the underlying asset, then objections have been made on the problem of paired contractual obligations ('aqdayn fi aqd). The existence of paired contractual obligations invalidates both the option contract and the sale contract of the underlying asset. Thus, to summarize, an option may be found objectionable if it is deemed to be independent of its underlying asset and again objectionable if it is dependent and therefore paired. The irony that an instrument could be prohibited based on two diametrically opposite viewpoints appears to have been lost.

The above example illustrates the difficulty in arriving at any form of consensus. While some mazhabs like the Hanbalis have been broader in their acceptance, the Shafi' and Hanafis have been less so. The Hanbalis for example are somewhat liberal when it comes to the option of stipulation (Khiyar-al-Shart). They hold that stipulations that remove a hardship, fulfill a legitimate need, provide a benefit, or facilitate the smooth flow of commercial transactions are generally acceptable as a matter of principle.

The above prohibitions notwithstanding, the fact that risk management realities may make it inevitable to use derivative instruments is shown by the fact that surveys by the Islamic Development Bank (IDB) find that some Islamic Financial Institution (IFIs) indeed use off Balance Sheet hedging tools such as forwards, swaps etc., in managing their currency risk. (Khan, T. and Ahmed, H (2001)).

Regardless of what their main reasons for objecting to these instruments may be, a common concern appears to be that enabling the use of derivatives could lead to potential speculative behavior. While this concern, is indeed a legitimate one, particularly in view of recent scandals involving derivatives, a clear balance has to be reached between the need to avoid speculative abuse and the need to use these instruments for genuine hedging. There is obviously a legitimate need to use these instruments for preserving value / wealth.

SECTION 4 : A Proposed Alternative to Value Preservation by Managing Equity Risk

In this section, a proposed alternative to value preservation through the management of equity risk is outlined. The focus is solely on the preservation of wealth invested in equity instruments. The proposal is built on the need to strike a balance between avoiding speculative behavior and enabling genuine hedging needs. The

leverage inherent of derivative instruments makes them highly amenable to speculative play, with potentially disastrous consequences to efforts of wealth preservation. However, by not being able to hedge with these instruments and exposing one's wealth to otherwise easily manageable risks, is being imprudent and equally irresponsible as is speculation.

The objective of the proposal is not to 'engineer' Islamic forms of conventional derivatives but to create an institutional arrangement which will alter the risk profile of an existing equity portfolio to that of a less risky one. To see how the proposal will work, we use the example an Islamic mutual fund or unit trust faced with equity risks. Recall, that currently, aside from diversification and asset allocation, Islamic Mutual funds have no means of hedging sudden downward swings in stock prices.

The proposed arrangement uses the logic of institutions already in place in conventional systems, to protect consumers who may not be able to hedge their exposures. One example, in the context of banking, is the FDIC (Federal Deposit Insurance Corporation) of the US. Based on this logic, the proposal requires the establishment of a government or quasi government agency with initial capital from the government. The FDIC is not government funded, but by an industry levy on private institutions. It's obligations however are guaranteed by the government. Just as the FDIC's role is to provide deposit insurance to depositors who otherwise have no means of hedging their risk, the proposed agency's role will be to protect Muslim wealth invested in equity by selling "portfolio insurance" to Islamic Mutual funds. In essence, the agency sells certificates that work like conventional Index Put options with perhaps a one year maturity. In exchange for paying premiums, the Islamic Mutual fund receives put certificates of a given face value, exercisable anytime within the one year maturity

period. Should the mutual fund experience a diminution in its portfolio and decide to exercise its put certificates, it will exercise by selling the insured portion of its portfolio at the market price that prevailed at the time of insurance. As with conventional derivatives, such exercise can be done only once until maturity and would be exercisable in full.

At this point, several questions should arise in one's mind. Given the several banking failures in the US even with the presence of the FDIC, insurance is obviously no panacea. The essential questions that need to be addressed would be:

- (i) How will the premiums be determined?
- (ii) How will it handle the potentially huge moral hazard problems and abuses?
- (iii) How will the agency offering the insurance, hedge its own exposure?
- (iv) Who would be the ultimate beneficiaries of this proposal and why would Islamic Mutual funds want to participate?

The discussion that follows will be organized in the order of the above questions. For ease of identification, let us name this proposed agency; IEGC for Islamic Equity Guarantee Corporation. As mentioned previously, IEGC sells portfolio insurance to Islamic Mutual funds in exchange for premiums. In essence, IEGC provides a guarantee against stock price declines. Experience however shows that guarantees, especially blanket ones are subject to serious abuse. Thus, for the proposal to be workable, safeguards and control systems must be built in.

In the subsections that follow, we address the above questions and outline some of the safeguards and operational controls that will be needed for the proposed agency to function well.

4.1: Determination of Premiums

Premiums charged by the IEGC will be dependent on two factors; first on the overall riskiness of a mutual fund's portfolio, and second on the Face Value of the amount to be insured. Both of these are logical determinants of premiums in conventional insurance and are intended to protect the insurer. Since the asset to be insured are publicly listed and exchange traded stocks, measuring their riskiness is relatively straight forward. The overall Beta (systematic risk) of the mutual fund's portfolio could be the riskiness measure. Thus, higher risk portfolios would be subject to higher premiums whereas lower risk ones, lower premium. The second determinant, the insured amount would obviously depend on the size of the mutual fund. However, in keeping with experience of insured regimes, it is proposed that the total amount insured be capped at a maximum of perhaps 30% of the total value of the fund to be insured. For example, suppose a mutual fund currently has a stock portfolio with a total current value of RM100 million. The value insured for such a fund should be RM30 million. This means that the insured mutual fund when exercising its put certificates will receive RM30 million from IEGC in exchange for 30% of its portfolio. Thus, the mutual fund gets to sell the stocks within the insured 30% of its total portfolio at the original value that prevailed at the time of insurance. IEGC now becomes the owner of these stocks. Any losses beyond the 30% will be borne by the fund's investors/unit holders. Thus, the proposed arrangement is really a partial not full hedge.

4.2: Safeguards against Moral Hazard

Key to the success of any guarantee scheme would be the avoidance of problems related to moral hazard. To be workable, the proposed arrangement must not give fund managers the incentive to increase portfolio risk subsequent to being insured

nor induce dysfunctional behavior along moral hazard lines. There are four reasons why moral hazard will be controlled in this proposed arrangement.

- (i) Premiums are dependent on risk, higher risk portfolios will be penalized with higher premiums. Since the monitoring of a fund's portfolio risk post-insurance, will be continual, subsequent increases in the overall portfolio will incur additional premiums. The continuous monitoring of insured mutual funds is not difficult, in fact for all public mutual funds, the trustees appointed as part of the approval process already monitor their funds. Mutual funds are required to report all transactions to the trustee. Thus, the IEGC would merely have to latch on to this mechanism in order to monitor the mutual funds.
- (ii) Since the asset being hedged are stocks that are publicly listed and traded, tracking their price movements or monitoring other events relevant to particular stock portfolios is not difficult. In fact, compared to the effort needed to monitor the quality of a bank's loans portfolio as does the FDIC, this will be a lot easier and cheaper and can be done on a high frequency basis.
- (iii) The third reason why there is in-built control against moral hazard, is the fact that even with the portfolio insurance, the hedge is a partial not a total one. Since mutual funds will be covered only up to a maximum 30% of the total value of the their funds, it will be in the interest of mutual fund managements to act prudently.
- (iv) Finally, moral hazard is also controlled by the fact that the put option bought from the IEGC is exercisable only once and in full within the one year maturity. This is a feature common to even exchange traded derivatives. Since the option is

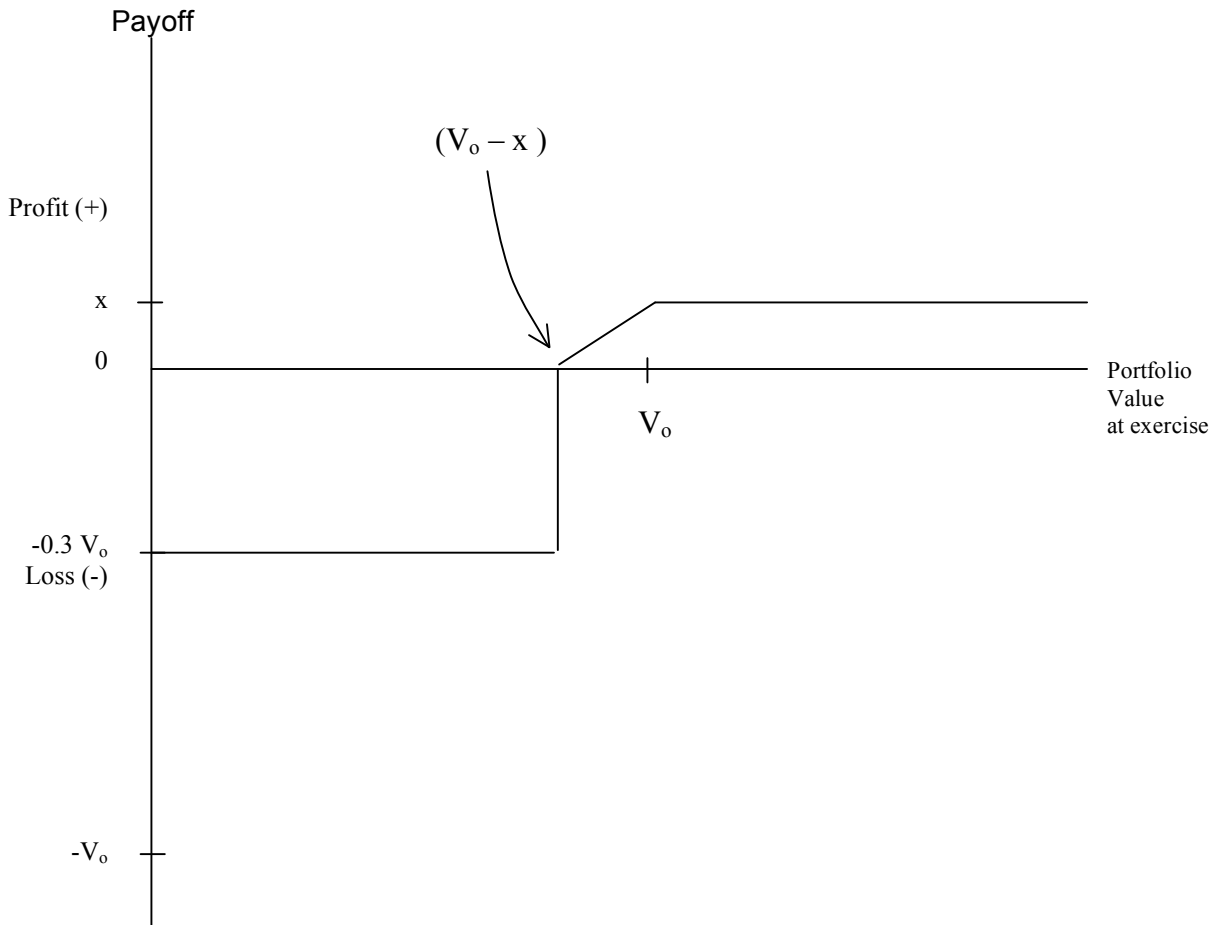
exercisable only once and in full, fund managers will have to think carefully before exercising and taking profit. Once exercised, the insurance lapses, and a new one has to be bought; at new premiums. The mutual fund will also have to give up on the portion of portfolio insured. Thus, it will not be in the fund manager's interest to exercise when there are small dips in prices and / or when he thinks the downturn is temporary.

4.3: How would IEGC manage its exposure?

In selling portfolio insurance, it is clear that the IEGC will be taking on the portfolio risks passed on it. A portion of the equity risk of Islamic Mutual funds is being transferred to the insurer. The cumulative total will be substantial. This risk must be managed. Unless carefully managed, the entity's initial capital could be quickly wiped out. In charging premiums according to portfolio risk and by limiting exposure to a maximum 30% of a fund's total value, the agency has taken the first steps in managing exposure.

Figure 2 below, shows the risk profile to the IEGC. Note that the agency's profit (from premium) is limited to the area between the horizontal axis and X. It's losses however have a potential maximum of $-0.3 V_0$, where V_0 is the portfolio value at the time the insurance is initiated. The point $0.3 V_0$, reflects the 30% cap on total value of portfolio insured. At any point to the right of V_0 , the agency keeps its premium. Losses are incurred when portfolio value falls below, $(V_0 - x)$.

Figure 2 - Payoff and Risk Profile to IEGC



In capping the value insured for a mutual fund, the IEGC is limiting its downside. As such, the risk profile of the agency is one of limited upside (profit potential) and limited downside (loss potential). Next, it has to do what all insurance companies do, invest its capital and proceeds from premiums collected in returnable earnings. Relative to a typical insurance company however, the IEGC has greater exposure to systematic risk. This is because, unlike fire, accident or other such insurance where the events are independent and uncorrelated, stock price movements are. A sliding stock market where most stocks fall together is entirely possible. Such systemic risk is also the case with banking and therefore FDIC type insurance. This is why, in insuring situations such as this, government participation is needed. Still, the IEGC has one advantage over conventional insurance, it takes possession of the

insured asset once the insured party exercises. This is unlike conventional insurance which only pays for the losses but does not take over the insured asset. On exercise, IEGC takes possession of the insured portion of the stock portfolio.

In the absence of Islamically acceptable derivatives with which to hedge itself, the logical means by which IEGC manages its risks would be to invest in assets uncorrelated to equity movements. The first such asset would be Islamic bonds, Green bills, Islamic Certificates of deposits etc. Additionally, investment in real estate assets, utilities, infrastructure projects and other halal businesses should be acceptable. Income from these investments, its holdings of stocks taken over from mutual funds, together with premiums received should be used to build on the initial capital. By investing in a wide range of projects IEGC will be diversifying and so managing its risk. In holding on to the stocks it has received on exercise by mutual funds, IEGC has the potential to gain from subsequent recovery in the stock prices. As an institution not subject to short term performance measures as mutual funds are, IEGC can afford to hold on to this stocks for longer periods. Finally, to further diversify and reduce risk, the practice of conventional insurance companies to undertake cross border reinsurance should also be possible here. In this situation, agencies similar to IEGC in other Muslim countries could invest in each other, thereby dissipating the risk of any one entity through cross border diversification.

4.4: Related Issues

Two related issues remain in this discussion. The first is the question of who is really being helped by this portfolio insurance proposal and second, why should Islamic mutual funds be willing to participate in this scheme. In addressing the first, it should be obvious that the ultimate beneficiary would be individual Muslim investors in mutual

funds. Mutual fund investment is a form of saving and constitutes a key portion of wealth in developed economies. The benefit of an altered (lowered) risk profile to an Insured Mutual Fund is shown in Figure 3 below.

Figure 3 - Payoff and Risk Profile to Insured Mutual Fund

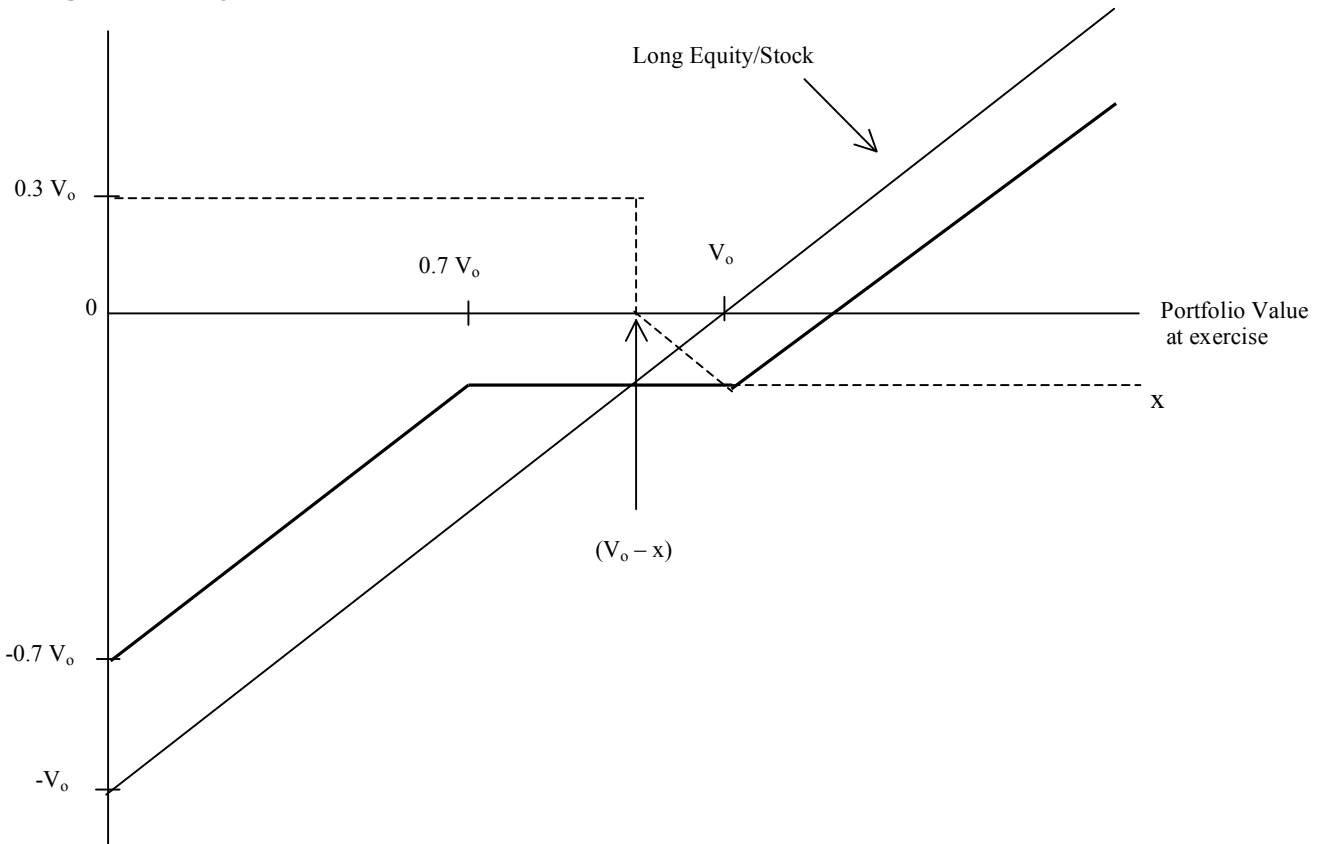


Figure 3 shows the payoff and risk profile to an insured Islamic Mutual fund. The solid line that passes through V_0 and ends at $-V_0$ represents the payoff to the original long stock or equities position. It also represents the payoff to the **unhedged** position. The dotted line denoted x which ends at $0.3 V_0$ is the mirror opposite of the payoff to IEGC (shown in Figure 2). At any point to the right of V_0 , (when value is rising), the insurance is worthless and therefore has a net cost of $-x$. At any value below V_0 , the insurance begins to be valuable. At any point to the left of $(V_0 - x)$, the insurance is worth exercising. The maximum profit from exercising the insurance is reached at $0.3 V_0$, which reflects the fact that insurance is capped at 30% of total fund value. The bold line

shows the payoff to the overall insured position. It is derived by aggregating the dotted line x and the long equity payoff line. Thus, at any point to the left of $(V_0 - x)$, the insurance scheme is always superior to the unhedged position. To the right of that point however, the insured scheme produces a return lower than the unhedged long equity position by the amount of the premium.

Mutual fund investment being a mudarabah arrangement, the individual investor has little recourse if a mutual fund makes losses. Any stability in mutual fund returns directly benefits its investors. In addition to more stabilized returns, individual investors also benefit from the monitoring services of the IEGC. As the agency continuously monitors mutual funds for changes in the risk profile of its insured funds, investors benefit from the scrutiny. The mere fact that an external party is monitoring their activity can temper a fund manager's behavior. This adds another layer of safety to the preservation of their wealth.

The final question that remains is, why should Islamic Mutual funds be willing to join such a insurance scheme. Obviously, participation will mean increased operational costs. Aside from the cost of the insurance premium there will be higher administrative costs in line with the need for additional compliance. Given these, it would appear that it will not be in the interest of a fund manager to participate. However, even without government fiat, it would be possible to get most funds to participate if, as in the case of the FDIC, participation is seen as an official stamp of approval and of government backing. When investors are shown as direct beneficiaries, market forces would ensure participation of the mutual funds. As investors gravitate towards the insured funds, it will be in the interest of uninsured ones to participate.

SECTION 5: Summary & Conclusion

The objective of this paper was to make a case for wealth preservation through risk management. It provided an exposition of risk management techniques used in conventional finance and outlined the limitations faced by Muslim fund managers and businesses. This limitation arises from the proscription of the key set of risk management tools; namely financial derivatives. Though the reasons for proscribing derivatives are varied, the overriding concern appears to be that they encourage speculative behaviour. As such, the emphasis of Islamic risk management has been on, On Balance Sheet Methods such as diversification and asset-allocation in the case of equity risks and methods such as exposure-netting, pricing strategy and CRSA in the case of currency exposure. The problem with On Balance Sheet Methods is that they require the restructuring of business transactions which can render businesses less competitive and subject to residual risk.

The paper goes on to propose a portfolio insurance scheme where Islamic Mutual funds would be able to buy the equivalent of Index Put options from a centralized agency. At the heart of the proposal is the need to strike a balance between the key concern of Shariah scholars, which is to prohibit speculation and the genuine hedging need to preserve Muslim wealth.

In avoiding speculative behaviour but enabling risk management, value is preserved. One should keep in mind, that a failure to manage risk is not just imprudent but value destructive. Risk reduction, aside from stabilizing returns can be value creating. As risk is reduced, the required returns for an investment reduces. For a given cash flow, the investment increases in value as required returns falls. Thus, risk management can be not only wealth preserving but also wealth creating.

One would be tempted to ask if the proposed scheme has real world precedence. The answer is, yes. Indeed there are several institutions that already play the same role as the proposed IEGC. The FDIC, which has already been mentioned is one. Another would be the Pension Benefits Guarantee Corporation (PBGC) also of the US.

In a sense, even within stock markets, market makers and specialist who are required to buy when stocks are falling are also playing a similar role. They however, assure liquidity not value. Their similarity with the IEGC is that they too would end up going long (buying) stocks during down markets. Their survivability has depended on their ability to manage their risks. **The ability to use derivatives to manage their risk has obviously made their task easier.** Finally, the proposed equity insurance is really not very different in risk profile terms, from the credit guarantees that Islamic Banks routinely provide for their customers. In providing a credit guarantee, a bank is essentially providing a **put option** to its customer. Thus, it is no different from the put option provided by the IEGC to Islamic Mutual funds.

In conclusion, the current inattention to risk management, in particular, equity risk can have serious long term implications on the overall economy. The inability to hedge equity risk and the resultant losses would cause money to flow away from Capital Markets and into non-tradeables such as real-estate or worse, gold, jewelry and the like. This stunts capital market growth, denies businesses the easy access to capital in order to grow and allocates resources into non tradeable assets which are amenable to asset bubbles. Money capital goes not into producing goods but into “safe” but “dead” assets. The result would be prohibitively high cost of capital for businesses, rendering the overall economy uncompetitive. Thus, there is a economic and social cost to ignoring risk management.

References

Abu Sulayman, A.I. (1992), Option: Comparative Analytical (Fiqhi) Juristic Study, *Contemporary Jurisprudence Research Journal*, Vol, 14, pp. 6-37.

Bacha, O. I. (2001), *Financial Derivatives; Markets and Applications In Malaysia*. Universiti Putra Publishers. Kuala Lumpur.

Bacha, O. I. (2002), *Risk Management And Islamic Capital Markets*; Islamic Capital Markets Conference, Securities Commission, March 2002, Kuala Lumpur.

Cumming, C. and Beverly J. H. (2001), The Challenges of Risk Management in Diversified Financial Companies *Economic Policy Review*, Federal Reserve Bank of New York, 7, 1-17.

Demirguc, A. and Enrica E. (2000), *Does Deposit Insurance Increase Banking System Stability?*, International Monetary Fund, Working Paper. WP No. 00/3. Washington DC.

Dubofsky, D.A, and Miller, T.W (2003), *Derivatives : Valuation And Risk Management*, Oxford University Press, New York.

El. Din, S.T. (1991), Risk Aversion, Moral Hazard And Financial Islamization Policy, *Review of Islamic Economics*, Vol. 1, No. 1, 49 – 66.

El-Gamal M A. (1998); Al-Gharar, Risk and Insurance/Discussion Forum. *International Journal of Islamic Financial Services*. Vol. 1, No. 1.

El-Gamal M.A. (2003), *Islamic Hedge Fund, Strategies & Tools*. IIF Discussion Paper, Dubai, 2003.

Kamali, M.H. (1977), Islamic Commercial Law : An Analysis of Option, *The American Journal of Islamic Social Sciences*, Vol. 14, Fall 1997, No. 3, pp. 17-37.

Kamali, M. H. (2002), *Islamic Commercial Law, An Analysis of Futures and Options*: Ilmiah Publishers, Kuala Lumpur.

Khan, T and Ahmed, H (2001), *Risk Management. An Analysis of Issues in Islamic Financial Industry*. Occasional Paper No. 5, IDB, 2001, Jeddah.

Obaidullah, M. (1998) Financial Engineering with Islamic Options, *Islamic Economic Studies*, Vol. 6 (No. 1).

Obaidullah, M. (2000); *Financial Contracting in Currency Markets: An Islamic Evaluation*, *International Journal of Islamic Financial Services*, Vol. 3, Number 3.

OIC, Fiqh Academy, (1998), *Resolution and Recommendation of Fiqh Academy Meeting (1-10) Decisions (1-97)*, Damascus, Dar al-Qalam.

Shapiro, A. C. (2003), *Multinational Financial Management*. 7th Edition, John Wiley, Danvers.

Sundarajan V. and Erico L.. (2002), *Islamic Financial Institutions and Products in the Global Financial System: Key Issues in Risk Management and Challenges Ahead*. IMF Working Paper, WP/02/192. Washington. DC.

Khan T. (2002), *Islamic Risk Management: Towards Financial Risk Management In Islamic Finance* :
http://home.talkcity.co/librarylawn/tariqullah_Islamic_Risk_Management.htm (accessed 1st Sept. 2002).

Vogel F.E & Hayes S.L. (1998), *Islamic Law and Finance*; Kluwer Law International, Cambridge.