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## **Risk management in Islamic banks**

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**ESLSCA Business School**

**Risk Management in Islamic Banks**

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## **Abstract**

The use of financial services and products that comply with the Shariah principles cause special issues for supervision and risk management. Efficient risk management in Islamic banking has assumed particular importance as they try to cope with the challenges of globalization. This paper highlights the special and general risks surrounding Islamic banking. It also explains the key challenges ahead to promote further development of Islamic banking in the global financial system. As The developing of managing risks tool becomes very essential especially in Islamic banking as most of the products is depending on PLS principle , so identifying and measuring each type of risk is highly important and critical in any Islamic financial based system .

Another approach on the recommendation is showing how the Islamic banking can be an ideal alternative than the current conventional banking system . emphasizing the role of Islamic banking on hedging against the economic crisis and the how it can be an add value to the nationals economics in terms of making the society more productive .



# Chapter one

## 1.1 Introduction

Islamic finance is a rapidly growing part of the financial sector in the world. Indeed, it is not restricted to Islamic countries and is spreading wherever there is a sizable Muslim community. More recently, it has caught the attention of conventional financial markets as well.

According to some estimates, more than 250 financial institutions in over 45 countries practice some form of Islamic finance, and the industry has been growing at a rate of more than 15 percent annually for the past five years. The market's current annual turnover is estimated to be \$350 billion, compared with a mere \$5 billion in 1985.<sup>1</sup> Since the emergence of Islamic banks in the early 1970s, considerable research has been conducted, focusing mainly on the viability, design, and operation of "deposit-accepting" financial institutions, which function primarily on the basis of profit- and loss-sharing partnerships rather than the payment or receipt of interest, a prohibited element in Islam.

The key feature, or principle, that distinguishes Islamic banking from any other kind of banks is the rejection of interest-based financial transaction. The Quran's ban on giving or receiving interest is known to all devout Muslims. The words from Chapter 2, Verse 278 of the Quran are, in fact, quite specific: "O you who believe! Have fear of Allah and give up what remains is due to you of usury... if you do not, then take notice of war from Allah and His Messenger."

Just how serious a sin in paying or receiving interest? Shaykh Nizam Yaquby, an Islamic scholar who is trained in both economics (at McGill University in Canada) and in Islamic Shariah law (in Saudi Arabia, India and Morocco), noted that Christianity and Judaism got over their hang-ups about it sometime during the Middle Ages – The Old Testament also includes several stern warnings about interest – but Islam never really budged. Back in the days of Muhammad, the reasons for deploring interest were self-evident. Loan-sharking was rampant, and failure to repay a loan could mean slavery. By outlawing interest, Islam advocated an economy based on risk-sharing, fair dealing and equity – in both the financial and social-justice senses of the world.

In this regard the Islamic financial system is concerned more about using money as a tool not as an objective. So the money can reflect the true value of resources. Globally, there has been significant interest and explosion in literature on risk analysis and management in the past decade or so. This has emerged largely because of a combination of developments. First, there has been greater reflection on risk mitigation and management in the wake of frequent episodes of financial crises. Second, financial diversification and product innovation have brought new dimensions and types of risks to the forefront. Third, the endeavors of the financial community to develop and innovate financial architecture, which, among other things, have resulted in agreements on Basel II that have evolved after a rich debate and understanding of how to measure, monitor, and cushion for different types of risks facing financial institutions and markets. However, all these developments have thus far revolved around the conventional financial system,

benefiting incrementally from the financial engineering and innovation of esoteric products and structures. While Islamic finance has grown substantively in the last few years, appreciation of its risk architecture and profile is still evolving.

New information-based activities, such as trading in financial markets and generating income through fees, are now a major source of a bank's profitability. Financial innovation has also led to the increased market orientation and marketability of bank assets, which entail the use of assets such as mortgages, automobile loans, and export credits as backing for marketable securities, a process known as securitization. A prime motivation for innovation has been the introduction of prudential capital requirements, which has led to a variety of new financial instruments. Some instruments are technically very complicated and poorly understood except by market experts, while many others pose complex problems for the measurement, management, and control of risk. Moreover, profits associated with some of these instruments are high and, like the financial markets from which they are derived, are highly volatile and expose banks to new or higher degrees of risk.

Worse to mention also that's the Islamic banking carry a unique risks more than the generic risks existed in the conventional system , but not based on the credit risk like the conventional system . and there is where the Islamic financial system derives its strength . in this research I'll try to clarify the effects of the credit on the economy statues and how it can weakens the financial system of the country , causing financial crisis , loosing of true value of resources and motivate speculations .

## **1.2 Profit and Loss Sharing (PLS):**

Commonly, business ventures start off with a loan. For Muslims, loans cannot be made or accepted according to traditional banking methods because this invariably entails the payment and receipt of interest and therefore is not *Halal*. Skipping past the laws of conventional finance and banking, Islamic banking allows prospective clients to borrow money while still adhering to Shariah law through a profit-and loss sharing scheme of financing. Profit-and-loss-sharing (PLS) financing is a form of partnership where partners share profits and losses on the basis of their capital share and effort. Unlike interest-based financing, there is no guaranteed rate of return. Islam supports the view that Muslims do not act as nominal creditors in any investment, but are actual partners in the business. This is an equity-based system of financing, where the justification for the PLS-financier's share in profit rests on their effort and the risk that they carry. In other words, they deserve to be rewarded since this profit would have been impossible without their investment and, furthermore, if the investment were to make a loss, then their money would also be lost.

### 1.3 Different types of Islamic products:

The following definitions are intended to help readers to have general understanding on the terms used in the Guiding Principles and they are by no means an exhaustive list.

Table 1: definitions for Islamic banking different products

Ijarah	An Ijarah contract refers to an agreement made by Islamic banking to lease to a customer an asset specified by the customer for an agreed period against specified installments of lease rental. An Ijarah contract commences with a promise to lease that is binding on the part of the potential lessee prior to entering the Ijarah contract.
Ijarah Muntahia Bittamleek	An Ijarah Muntahia Bittamleek (or Ijarah wa Iqtina) is a form of lease contract that offers the lessee an option to own the asset at the end of the lease period either by purchase of the asset through a token consideration or payment of the market value, or by means of a gift contract.
Investment Risk Reserve	Investment risk reserve is the amount appropriated by the IIFS out of the income of IAH, after allocating the Mudarib's share, in order to cushion against future investment losses for IAH.
Istisnah	An Istisnah` contract refers to an agreement to sell to a customer a non-existent asset, which is to be manufactured or built according to the buyer's specifications and is to be delivered on a specified future date at a predetermined selling price.
Muqārabah	A Muqārabah is a contract between the capital provider and a skilled entrepreneur whereby the capital provider would contribute capital to an enterprise or activity, which is to be managed, by the entrepreneur as the Muqārib (or labor provider). Profits generated by that enterprise or activity are shared in accordance with the terms of the Muqārabah agreement whilst losses are to borne solely by the capital provider unless

	the losses are due to the Muqarib's misconduct, negligence or breach of contracted terms.
Murabahah	A Murabahah contract refers to a sale contract whereby the IIFS sell to a customer at an agreed profit margin plus cost (selling price), a specified kind of asset that is already in their possession.
Murabahah for the Purchase Ordered (MPO)	An MPO contract refers to a sale contract whereby the Islamic banking sell to a customer at cost plus an agreed profit margin (selling price), a specified kind of asset that has been purchased and acquired by the Islamic banking based on a promise to purchase from the customer, which can be binding or non-binding.
Musharakah	A Musharakah is a contract between the Islamic banking and a customer to contribute capital to an enterprise, whether existing or new, or to ownership of a real estate or moveable asset, either on a temporary or permanent basis. Profits generated by that enterprise or real estate/asset are shared in accordance with the terms of Musharakah agreement whilst losses are shared in proportion to each partner's share of capital.
Diminishing Musharakah	Diminishing Musharakah is a form of partnership in which one of the partner promises to buy the equity share of the other partner gradually until the title to the equity is completely transferred to the buying partner. The transaction starts with the formation of a partnership, after which buying and selling of the other partner's equity take place at market value or the price agreed upon at the time of entering into the contract. The "buying and selling" is independent of the partnership contract and should not be stipulated in the partnership contract since the buying partner is only allowed to

Source: Guiding principles on liquidity risk management for institutions offering Islamic financial service, IFSB, Islamic financial service board publications- December 2005.

#### **1.4 Problem Definition:**

The problem of the research is to illustrate the different types of risks faced by an Islamic bank and the methods of both managing and measuring those types of risks .

#### **1.5 Research objectives:**

This study aims specifically at achieving the following objectives:

1. To explain the risks that Islamic banks face and show how they are different from the risks faced by conventional banks.
2. To explain the Basel II guidelines relating to Capital Adequacy Requirements (CAR). And how CAR can be measured in Islamic banks

## Chapter Two

### 2.1 Literature review

The Islamic banks are required to adhere to Shariah precepts in all their operations. The predetermined fixed return on loans and deposits is not allowed according to Shariah principals. Thus, the Islamic banks' resource mobilization and financing are based on profit and risk sharing. Risk is basic element in Islamic business transactions but uncertainty (gharar) is considered unlawful. Therefore, contrary to conventional banks, financing for speculation purposes is prohibited in Islamic banking. The asset backing is an essential element for financing transactions in Islamic banking. For instance, sukuk or Islamic bond is asset based rather than debt based. Furthermore, Islamic banks are not allowed to finance for haram activities such as liquor, pornography, tobacco, and gambling etc.

The difference between Islamic banks and conventional banks is more apparent in the area of risks and risk management. The distinct nature of relationship with customers and different kinds of financing and investing activities entail unique risks besides general risks faced by the Islamic banks. The common risks faced both by Islamic and conventional banks are credit risk, market risk, operational risk and liquidity risk while unique risks such as displaced commercial risk and Shariah compliance risk are related to Islamic banks only. Many conventional banks comply with the requirements of Basel II capital adequacy requirements in managing their credit risk. Such requirements include determining the risk weights through standardized approach or Internal Ratings-Based (IRB) approach. Under the standardized approach the banks are required to use ratings from External Credit Rating Agencies to quantify required capital for credit risk. While the banks which have more advanced risk management capabilities are allowed to adopt Internal Ratings-Based (IRB) approach to measure credit risk. Under this approach the risk weights are derived from four quantitative data risk components such as probability of default (PD), loss given default (LGD), exposure at default (EAD) and maturity (M). The risk weights vary according to the nature of the risk. However, in both the approaches the total capital adequacy ratio must not be lower than 8%.

Though Basel II capital adequacy requirements are designed to suit the needs of the conventional banks, their implementation can be very challenging in the case of Islamic banks. This is because the items both at liability and asset sides of Islamic banks are quite different from liabilities and assets of conventional banks. Moreover, the unique nature of risks faced by the Islamic banks involves different challenges for compliance with Basel II capital adequacy requirements.

## 2.2 Defining Risk

Risk arises when there is a possibility of more than one outcome and the ultimate outcome is unknown. In business Dictionary risk is defined as a probability or threat of damage, injury, liability, loss, or other negative occurrence that is caused by external or internal vulnerabilities, and that may be neutralized through preemptive action.<sup>7</sup>

According to Wikipedia, 'Risk is a concept that denotes a potential negative impact to some characteristic of value that may arise from a future event, or we can say that "Risks are events or conditions that may occur, and whose occurrence, if it does take place, has a harmful or negative effect'. Exposure to the consequences of uncertainty constitutes a risk. In everyday usage, risk is often used synonymously with the probability of a known loss.

Also (Ross, Westerfield and Jordan -2007) explained that risks can be classified into systematic and unsystematic components. The systematic risk is one that influences a large number of assets, each to a greater or lesser extent. Because systematic risks have market wide effects, they are sometimes called market risks. The unsystematic risk is one that affects a single asset or a small group of assets. Because these risks are unique to individual companies or assets, they are sometimes called unique or asset-specific risks.

## 2.3 Definition for different types of risks in Islamic banking.

Islamic banks carry different types of risks, some of them exists only on any Islamic banking. And others are common between both Islamic and conventional banks .

The below figures clarifies both types and a definition of each type :

Table 2: Different types of risks

<b>Types of Common risks</b>	<b>Both Islamic and conventional banking</b>
Credit risk	The potential that a counterparty fails to meet its obligations in accordance with agreed terms and conditions of a credit-related contract
Market risk	The potential impact of adverse price movements such as benchmark rates, foreign exchange rates, equity prices on the economic value of an asset
Liquidity risk	The potential loss arising from the Bank's inability either to meet its obligations or to fund increases in assets as they fall due without incurring unacceptable costs or losses

Operational risk	The potential loss resulting from inadequate or failed internal processes, people and system or external events
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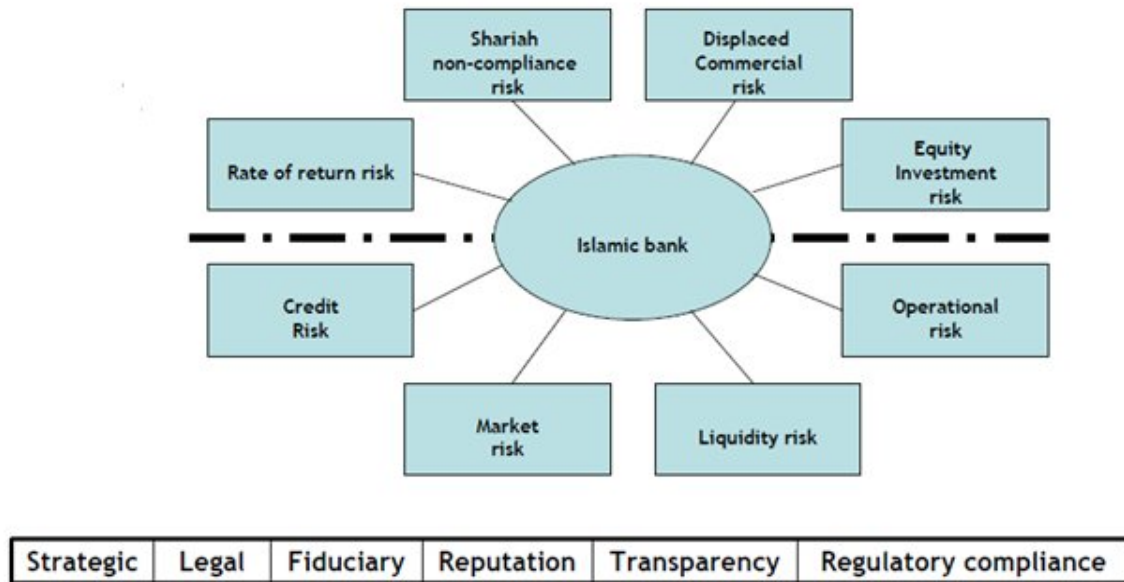
<b>Types of Unique risks</b>	<b>Islamic banking Only</b>
Shariah noncompliance risk	Risk arises from the failure to comply with the Shariah rules and principles
Rate of return risk	The potential impact on the returns caused by unexpected change in the rate of returns
Displaced Commercial risk	The risk that the bank may confront commercial pressure to pay returns that exceed the rate that has been earned on its assets financed by investment account holders. The bank foregoes part or its entire share of profit in order to retain its fund providers and dissuade them from withdrawing their funds.
Equity Investment risk	The risk arising from entering into a partnership for the purpose of undertaking or participating in a particular financing or general business activity as described in the contract, and in which the provider of finance shares in the business risk. This risk is relevant under Mudarabah and Musharakah contracts.
Inventory risk	risk arising from holding items in inventory either for resale under a Murabahah' contract, or with a view to leasing under the ijarah contract

Source : Jeroen P.M.M. Thijs , Chief Risk Officer .risk management in Islamic banking .  
bank Islam Malaysia Berhad



Figure 1 : different types of risk in Islamic banks

## RISK PROFILE OF ISLAMIC BANK



Source : Jeroen P.M.M. Thijs , Chief Risk Officer .risk management in Islamic banking . bank Islam Malaysia Berhad

### 2.4 Nature of risks in Islamic banking:

All businesses including financial institutions face risk and uncertainty. However, Islamic banking faces some special kinds of risks given their nature of activities. There are different types of risk faced by the financial institutions. Some risks are common to both Islamic banks and conventional banks such as credit risk, market risk, operational risk and liquidity risk but some risks are unique to Islamic banks only such as displaced commercial risk and Shariah compliance risk. taking into consideration that the Islamic financial system is based mainly on (PLS) principle which carry out a portion of risk itself without going through the generic risks faced by conventional banks . amongst common risks the degree and intensity vary between Islamic banks and commercial banks due to unique business nature of Islamic banks. For instance, the conventional banks face market risk in the trading book transactions only whereas Islamic banks face market risk in both banking and trading books transactions which make them different in applying, however they are similar in meaning in both of them:

## 2.4.1 Credit Risk:

the credit risk is simply defined as the failure of debtor to repay the loan either it is an individual or a business entity, the credit risk is not limited only on the failure of repaying the loan but includes also the delay of paying it. which can cause cash flow problems and affect a bank's liquidity.

The techniques used by Islamic banks to mitigate credit risk are similar to those used by conventional banks. However, in the absence of credit-rating agencies, banks rely on the client's track record with the bank and gather information about the creditworthiness of the client through informal sources and local community networks such as checking customer profile, place of work, address, last month's paid salary..Etc.

The unique characteristics of the financial instruments offered by Islamic banks result in the following special credit risks; accordingly there is a specific types of credit risk concerned Islamic banks that defined as a credit risk but different in applying according to the difference between the conventional banks and Islamic banks credit products, such as,

- 1- In murabahah transactions, Islamic banks are exposed to credit risks when the bank delivers the asset to the client but does not receive payment from the client in time. In case of a nonbinding murabahah, where the client has the right to refuse delivery of the product purchased by the bank, the bank is further exposed to price and market risks.
- 2- In bay' al-salaam or istisnah contracts, the bank is exposed to the risk of failure to supply on time, to supply at all, or to supply the quality of goods as contractually specified. Such failure could result in a delay or default in payment, or in delivery of the product, and can expose Islamic banks to financial losses of income as well as capital.
- 3- In the case of mudarabah investments, where the Islamic bank enters into the mudarabah contract as rab al-mal (principal) with an external mudarib (agent), in addition to the typical principal-agent problems; the Islamic bank is exposed to an enhanced credit risk on the amounts advanced to the mudarib. The nature of the mudarabah contract is such that it does not give the bank appropriate rights to monitor the mudarib or to participate in management of the project, which makes it difficult to assess and manage credit risk. The bank is not in a position to know or decide how the activities of the mudarib can be monitored accurately, especially if losses are claimed. This risk is especially present in markets where information asymmetry is high and transparency in financial disclosure by the mudarib is low. Another approach defined by (SBP) state bank of Pakistan concerned the credit risk in mudarabah or musharakah contracts, is that during the contract life, the risk inherent in a Murabahah contract is transformed from market risk to credit risk. In another example, the invested capital in a Mudarabah

or Musharakah contract will be transformed to debt in case of proven negligence or misconduct of the Mudarib or the Musharakah's managing partner.

## **2.4.2 Liquidity risk:**

Liquidity risk is the potential loss to Islamic banking that arising from their inability either to meet their obligations or to fund increases in assets as they fall due without incurring unacceptable costs or losses.

According to (Greuning and Iqbal 2007) a bank is said to have adequate liquidity potential when it can obtain needed funds (by increasing liabilities, securitizing, or selling assets) promptly and at a reasonable cost. The price of liquidity is a function of market conditions and the market's perception of the inherent riskiness of the borrowing institution, thus the amount of liquid or readily marketable assets that a bank should hold depends on the stability of its deposit structure and the potential for rapid expansion of the asset portfolio. Generally, if deposits are composed primarily of small, stable accounts, a bank will need relatively low liquidity. A much higher liquidity position normally is required when a substantial portion of the loan portfolio consists of large long-term loans, when a bank has a somewhat high concentration of deposits, or when recent trends show reductions in large corporate or household deposit accounts. Situations also can arise in which a bank should increase its liquidity position; for example, when large commitments have been made on the assets side and the bank expects the client to start using them.

### **2.4.2.1 Categorizations of liquidity risk:**

According to IFSB<sup>1</sup> in guiding principles on liquidity risk management for institutions offering Islamic financial service the Liquidity risk can be categorized into two major types: funding and market liquidity risk. Funding liquidity risk is the risk that an Islamic banking will not be able to meet efficiently both its expected and unexpected current and future cash flow and collateral needs without affecting either daily operations or the financial condition of the Islamic banking. Market liquidity risk is the risk that an IIFS cannot easily offset or eliminate a position at the market price because of inadequate market depth or market disruption. In other words (Greuning and Iqbal 2007) categorize the Liquidity risk as it applies to Islamic banks can be into f two types: lack of liquidity in the market and lack of access to funding. In the first type, illiquid assets make it difficult for the financial institution to meet its liabilities and financial obligations. In the second, the institution is unable to borrow or raise funds at a reasonable cost, when needed.

### **2.4.2.2 Liquidity risk sensitivity in Islamic banks:**

Liquidity risk is one of the most critical risks facing Islamic banks, according to (Greuning and Iqbal 2007) and IFSB specify the following reasons that act as a critical factor in managing liquidity risks in Islamic banks:

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<sup>1</sup> IFSB : Islamic financial service board

Limited availability of a Shariah-compatible money market and intra bank Market is the leading cause of liquidity risk. Prohibition by Shariah law from borrowing on the basis of interest in case of need and the absence of an active interbank money market have restricted Islamic banks' options to manage their liquidity positions efficiently.

Shallow secondary markets are another source of liquidity risk. The Financial instruments that can be traded in the secondary market are limited such as conventional bonds and T-bill that is commonly used in the conventional banks, and the Shariah imposes certain limitations on the trading of financial claims, unless such claims are linked to a real asset. Therefore, there is a need to develop asset backed tradable securities, known as sukuk. Even where instruments are available, the number of market participants is limited. Typical avenues of liquidity management available to conventional Banks-the interbank market, secondary market for debt instruments, and discount windows from the lender of last resort (central bank)- are all considered as based on Riba (interest) and, therefore, are not acceptable. Conventional banks have access to borrowing with overnight to extended short-term maturity through well-developed and efficient interbank markets. This access is vital for meeting the institution's need for short-term cash flow.

Certain characteristics of some Islamic instruments give rise to liquidity risks for Islamic banks. For example, liquidity becomes a problem given the cancellation risks in murabahah or the inability to trade murabahah or bay' al salaam contracts, which can be traded only at par. Islamic banks hold a considerable proportion of funds as demand deposits in current accounts, and these can be withdrawn at any time. Banks guarantee repayment of the principal deposited, and account holders do not have rights to a share in the profits. Some Islamic banks invest only a small fraction of the current account holders' funds and, in the absence of liquid short-term instruments, maintain a high level of idle cash.

For the above reasons some governments that have an economic based on high portion of Islamic financial system have developed some instrument to heal the liquidity risk management problem in the Islamic banks, such acts are:

The Central Bank of Sudan has introduced Shariah compatible securities to provide liquidity in the market Malaysia also has taken steps to promote Islamic banks and reduce liquidity risk. The central bank, Bank Negara Malaysia, introduced the (IIMM)<sup>2</sup> in early 1994. The activities of the IIMM include the purchase and sale of Islamic financial instruments among market participants (including the central bank), interbank investment activities through the mudarabah interbank investment scheme, and a check clearing and settlement system.

Furthermore the Islamic financial instruments that are currently being traded in the market on the basis of bay' al-dayn (sale of debt) is the green banker's acceptances,

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<sup>2</sup> IIMM : Islamic Interbank Money Market

Islamic bills, Islamic mortgage bonds, and Islamic private debt securities. In addition, financial institutions can sell government investment issues to the central bank, as and when required, to meet their liquidity needs. In turn, financial institutions can buy Shariah-compliant investment issues from the central bank. Whereas the contract of bay' al-dayn is commonly accepted and practiced in the Malaysian financial markets, it is not accepted by a majority of Shariah scholars outside Malaysia, who maintain that debt can be traded only at par. If trade is not at par, they feel that the practice opens the door to Riba. Shariah scholars in other jurisdictions need to become proactive in finding solutions for reducing liquidity risk.

### **2.4.3 Market Risk**

State bank of Pakistan defined the market risk as the risk of losses in on- and off-balance sheet positions arising from movements in market prices i.e. fluctuations in values in tradable, marketable or leasable assets (including sukuk) and in off-balance sheet individual portfolios (for example restricted investment accounts). The risks relate to the current and future volatility of market values of specific assets (for example, the commodity price of a Salam asset, the market value of a sukuk, the market value of Murabahah assets purchased to be delivered over a specific period) and of foreign exchange rates.

Market risk is a generic risk held by both Islamic and conventional financial institutions as both are exposure to changes in the prices of equity instruments, commodities, fixed-income securities, and currencies. so market risk for a financial institution arises in the form of unfavorable price movements, such as yields (rate-of-return risk), benchmark rates (rate-of-return risk), foreign exchange rates (FX risk), and equity and commodity prices (price risk), which have a potential impact on the financial value of an asset over the life of the contract. Islamic banks are further exposed to market risk due to the volatility in the value of tradable, marketable, or leasable assets. The risks relate to the current and future volatility of the market value of specific assets.

#### **Market risk categorizations:**

##### **2.4.3.1 Markup Risk**

In murabahah contracts, the Islamic banks give a markup rate for a fixed duration, while the benchmark rate may change. This means that the prevailing markup rate may rise beyond the rate the bank has locked into a contract, making the bank unable to benefit from higher rate. Taking in to account that in the absence of an Islamic index of rate of return, Islamic banks often use the London Interbank Offered Rate (LIBOR) as the benchmark, which aligns their market risk closely with the movement in LIBOR rates.

### **2.4.3.2 Price Risk**

under the Islamic banking special product , The Islamic banking is exposed to price risk in case of bay' al-salaam (forward sale), during the period of delivering the commodities and its sale at the prevailing market price . This risk is similar to the market risk of a forward contract in conventional banks if it is not hedged properly.

### **2.4.3.3. Leased Asset Value Risk**

In case of an operating ijarah, the bank is exposed to market risk due to a fall in the residual value of the leased asset at the expiry of the lease term or, in case of early termination due to default, over the life of the contract.

### **2.4.3.4. Currency Risk**

Currency risk can be found in more than one face particularly in Islamic banking and especially in the absence of hedging tools like derivatives , currency swaps and forward contracts. The major two faces in Islamic banking concerned currency risk are Currency risk and Foreign exchange rate movement is another transaction. Currency risk arises from a mismatch between the value of assets and that of capital and liabilities denominated in foreign currency (or vice versa) or from a mismatch between foreign receivables and foreign payables that are expressed in a domestic currency. Currency risk is of a “speculative” nature and can therefore result in a gain or a loss, depending on the direction of exchange rate shifts and whether a bank is net long or net short in the foreign currency. For example, in the case of a net long position, domestic currency depreciation will result in a net gain for a bank and currency appreciation will produce a loss. Under a net short position, exchange rate movements will have the opposite effect.

Foreign exchange rate movement is another transaction risk arising from the deferred trading nature of some contracts offered by Islamic banks, as the value of the currency in which receivables are due may depreciate or the currency in which payables are due may appreciate. In the absence of any tradable derivatives with which to hedge currency risk, Islamic financial institutions are further exposed to this risk. This is another reason why financial institutions shy away from either exposing themselves to or helping their clients to hedge currency risks.

### **2.4.3.5 Securities price Risk**

With a growing market for Islamic bonds (sukuk), Islamic banks invest a portion of their assets in marketable securities. However, the prices of such securities are exposed to current yields in the market. Similar to a fixed-income security, the prices go down as yields go up and vice versa. Islamic banks holding such securities are exposed to volatility in yield, unless they hold the security until maturity. Furthermore, the

secondary market for such securities may not be very liquid, exposing Islamic banks to distorted prices.

#### **2.4.4 Operational Risk:**

Operational risk in Islamic banking carry more than one face as mixed between the control of the internal business flow and business process in terms of people , systems, procedures and the Shariah compliance , as it differ than its peer in conventional banks , as for Islamic banking is exposed to operationally risk would arising from :

failures in their internal controls involving processes, people and systems. The controls should provide reasonable assurance of the soundness of operations and reliability of reporting. failures in governance, business strategy and process. Negative publicity about the Islamic banking business practices, particularly relating to Shariah non-compliance in their products and services, could have an impact upon their market position, profitability and liquidity.

risks relating to Shariah non-compliance and risks associated with the Islamic banks' fiduciary responsibilities towards different fund providers. These risks expose Islamic banking to fund providers' withdrawals, loss of income and confidence or voiding of contracts leading to a diminished reputation or the limitation of business opportunities. A reliable IT system is a must for profit sharing mechanism, failure of which may lead to Shariah non-compliance risk. The bank should identify key risk indicators and should place key control activities like Code of Conduct, Delegation of authority, segregation of duties, succession planning, mandatory leave, staff compensation, recruitment and training, dealing with customers, complaint handling, record keeping,, physical controls etc.

Islamic banks shall consider the full range of material operational risks affecting their operations, including the risk of loss resulting from inadequate or failed internal processes. Islamic banks shall also incorporate possible causes of loss resulting from Shariah non-compliance and the failure in their fiduciary responsibilities

Furthermore Specific aspects of Islamic banking could raise the operational risks of Islamic banks, such risks can be raised especially in Islamic banks (Greuning and Iqbal 2007) includes:

- a) Cancellation risks in the nonbinding murabahah (partnership) and istisnah (manufacturing) contracts.
- b) Failure of the internal control system to detect and manage potential problems in the operational processes and back-office functions as well as technical risks of various sorts.
- c) Potential difficulties in enforcing Islamic contracts in a broader legal environment.

- d) Need to maintain and manage commodity inventories often in illiquid markets
- e) Potential costs and risks of monitoring equity-type contracts and the associated legal risks.

## **2.5 Unique risks in Islamic banking system.**

### **2.5.1 Rate of Return Risk**

IFSB defines the rate of return risk in Islamic banks, as it's the risk resulted from unknown return of an investment invested by IAH (investment account holder) , as the increasing in benchmark rates caused by other investment financial institutions , stress on the Islamic banks to offer a higher rates to their investors For example, an Islamic bank may expect to earn 5 percent on its assets, which is passed on to the investors-depositors. Meanwhile, if current market rates rise up to 6 percent, which is higher than what the bank may earn on its investment, the investors-depositors may also expect to earn 6 percent on their deposits.

(Greuning and Iqbal 2007) differentiate between The rate-of-return risk and the interest rate risk in two ways. First, since conventional banks operate on interest-based, fixed income securities on the assets side, there is less uncertainty in the rate of return earned on investments held until maturity. Since Islamic banks have a mix of markup-based and equity-based investments, this uncertainty is higher. Second, the return on deposits in conventional banks is predetermined; in contrast, the return on deposits in Islamic banks is anticipated, but not agreed beforehand. In addition, the return on some investments that based on equity partnerships are not known accurately until the end of the investment period. Islamic banks have to wait for the results of their investment to determine the level of return that investors-depositors will earn. If, during this period, the prevailing yields or expected rates of return change, the investors may expect to receive similar yields from the bank.

### **2.5.2 Displaced commercial Risk**

IFSB consider this as an exclusive type of risk in Islamic banks as a consequence of rate of return risk as it results when Islamic banks is obliged to pay a return that exceeds the rate that has been earned on assets financed by IAH when the return on assets is under-performing as compared with competitors' rates to retain their IAHs ,Displaced commercial risk derives from competitive pressures on IIFS to attract and retain investors (fund providers). The decision of Islamic banks to waive their rights to part or all of their Mudarib share in profits in favour of IAH is a commercial decision.

(Haron and Hock 2007) stated that displaced commercial risk occurs when IAH funds are invested in assets such as murabahah or ijarah with long term maturity periods and the rate of return may not be competitive with alternative investments. Though Islamic banks are not supposed to do such income smoothing but due to commercial pressure, they are virtually forced to do for IAH. To manage displaced commercial risk the Islamic banks



create reserves such as profit equalization reserve (PER) and investment risk reserve (IRR).

**-A Profit Equalization Reserve (PER)** is the amount appropriated by IIFS out of their gross income, before allocating the Muqārib share, in order to maintain a certain level of return on investment for IAH and increase owners' equity. The basis for computing the amounts to be so appropriated should be pre-defined and applied in accordance with the contractual conditions accepted by the IAH and after formal review and approval by the Islamic banks' BOD. In certain jurisdictions, the supervisory authority lays down requirements relating to the maintenance of the PER.

**-An Investment Risk Reserve (IRR)** is the amount appropriated by Islamic banks out of income of IAH, after allocating the Muqārib share, in order to cushion the effects of the risk of future investment losses on IAH. The terms and conditions whereby IRR can be set aside and utilized should be determined and approved by the BOD.

### **2.5.3 Equity investment risk**

IFSB defined the equity investment risk as the risk rising from entering into a partnership for the purpose of undertaking or participating in a particular financing or general business activity as described in the contract, and in which the provider of finance shares in the business risk. This risk is somewhat unique to Islamic financial institutions, considering that conventional commercial banks do not invest in equity based assets. Equity investments can lead to volatility in the financial institution's earnings due to the liquidity, credit, and market risks associated with equity holdings. Although there is credit risk in equity-based assets, there is also considerable financial risk: capital may be lost due to business losses.

#### **Distinct features of equity investment Risk:**

IFSB agreed on some features of this type of risk that also considerable an unique risk only face the Islamic banks, those features as follow:

- 1- The nature of equity investment requires enhanced monitoring to reduce informational asymmetries. These measures include proper financial disclosure, closer involvement with the project, transparency in reporting, and supervision during all phases of the project, from appraisal to completion. Therefore, Islamic banks need to play an active role in monitoring.
- 2- In evaluating the risk of an investment using the profit sharing instruments of Mudarabah or Musharakah, the risk profiles of potential partners (Muqārib or Musharakah partner) are crucial considerations for the undertaking of due diligence. Such due diligence is essential to the fulfillment of Islamic banks s'

fiduciary responsibilities as an investor of IAH funds on a profit-sharing and loss-bearing basis (Mudarabah) or a profit and loss sharing basis (Musharakah). These risk profiles include the past record of the management team and quality of the business plan of, and human resources involved in, the proposed Mudarabah or Musharakah activity. Furthermore these types of contracts needs a continuous monitoring from the Islamic banks on mudarib or its business partner as The degree of risk is relatively higher than in other investments, and Islamic banks should take extreme care in evaluating and selecting the projects, in order to minimize potential losses.

- 3- Timely allocation of profit can be agreed upfront , Islamic banks should be prepared for delays and variation in cash flow patterns and possible difficulties in executing a successful exit strategy
- 4- The risks arising from the use of profit sharing instruments for financing purposes do not include credit risk in the conventional sense, but share a crucial characteristic of credit risk because of the risk of capital impairment.

## **2.6 Basel II:**

### **Background**

Capital is the key source to be used to protect the depositors' money from unpredicted losses. It is an important source for funding of earnings assets and vital for stability cushion. Bank capital may be consisted of equity and non-deposit liabilities or debt capital. In order to ensure that banks are adequately funded and capitalized, the Basel Capital Accords came up with a minimum capital requirement.(Wafik and Anoma 2007) stated that the focus of the original 1988 accord was on a cushion for credit risk which was amended in 1996 to include capital requirements to cover market risk. However, in Basel II framework, operational risk has also been taken into account with a related requirement of capital adequacy.

#### **2.6.1 Overview of the Basel capital Adequacy framework.**

Capital is often considered as a cushion that helps banks absorb their losses and thus avoid failure in the long run. Capital adequacy ratios (CARs) are a measure of the amount of capital that a bank must hold expressed as a percentage of the bank's total risk-weighted assets Under Basel I and Basel II agreements, in order to be classified as 'adequately capitalized The keystone of this accord is that banks have to maintain a CAR of at least 8 per cent. The CAR can be computed by dividing total capital by total risk-weighted assets.

Basel I agreement classified assets into five risk groups (0, 10, 20, 50 and 100 per cent) based on credit and counterparty risks. It was later found, however, that the 1998 Accord

has many deficiencies that appealed for further review. For instance, short-term funding was considered less risky than long-term financing and thus received a weight of 20 per cent, while anything with a maturity greater than one year was risk-weighted at 100 per cent. Such a risk weighting system might have contributed to financial instability by encouraging short-term lending at the expense of longer term, stable credit.

The new Accord is based on three mutually reinforcing pillars.

**-The pillar 1** deals with minimum capital requirement that is adequate to cover the risks of a bank.

**-The Pillar 2** is concerns with the supervisory review process that assures capital adequacy.

**-The Pillar 3** covers the market discipline that aims to complement the Pillar 1 and Pillar 2 by enhancing market assessment of a bank and its capital adequacy.

In Basel II, bank activities are classified into banking and trading books for the purpose of calculating the capital adequacy ratio. The banking book consists of all banking activities such as the transformation of depositors' funds into loans and advances while the trading book covers the activities of buying and selling of securities.

The definition of capital has not changed with the new capital accord. Rather, it is the computation of risk-weighted assets that is modified with the inclusion of two additional types of risk: market risk and operational risk. Market risk results from the risk of losses in on and off-balance sheet positions arising from movements in market prices. Of the innovations under Basel II, bank activities are classified into either banking or trading books for the purpose of calculating the CAR. While the banking book consists of all banking activities such as the transformation of depositors' funds into loans or instruments provided to users of funds, the trading book clusters the activities that involve buying and selling of securities. Banks' exposure to market risk is reflected in their portfolio of securities and is therefore estimated based on its trading book. On the other hand, operational risk refers to the risk of loss resulting from inadequate internal processes .

For conventional banks, the CAR as stipulated in Pillar 1 of Basel II is expressed as:

$$CAR = \frac{\textit{Tier 1 Capital} + \textit{Tier 2 Capital}}{\textit{Risk Weighted Assets}}$$

Where:

**Tier 1 or Core Capital:** comprises of paid up share capital/common stock, disclosed reserves from post-tax retained earnings, non-cumulative perpetual preferred stock (goodwill to be excluded).

**Tier 2 or Supplementary Capital:** includes undisclosed reserves, asset revaluation reserves, general provisions/general loan-loss provisions, hybrid (debt/equity) capital

instruments and subordinated term debts. Eligible Tier 2 capital may not exceed total Tier 1 capital and long term subordinated debt may not exceed 50% of the Tier 1 capital.

**Tier 3 Capital:** consists of unsecured debt which include subordinated and fully paid up, to have an original maturity of at least two years and not to be repayable before the agreed repayment date unless the supervisory authority agreed. This type of capital will be limited to 250% of a bank's Tier1 capital, which is required to support market risks. As for Islamic banks calculating CAR is different according to the three different approaches of calculating

### **2.6.2 Pillar 1: Capital Adequacy Requirement.**

Unlike depositors of conventional banks, the contractual agreement between Islamic banks and investment account holders is based on the concept of sharing profit and loss, which makes investment account holders a unique class of quasi-liability holders: they are neither depositors nor equity holders. Although they are not part of the bank's capital, they are expected to absorb all losses on the investments made through their funds, unless there is evidence of negligence or misconduct on the part of the bank. The nature of intermediation and liabilities has serious implications for the determination of adequate capital for Islamic banks (Greuning and Iqbal 2007) .

\_ Deposits taken on the basis of profit- and loss-sharing agreements should not be subject to any capital requirements other than to cover liability for negligence and misconduct and winding-down expenses.

\_ Investments funded by current accounts carry commercial banking risks and should be subject to adequate risk weights and capital allocation.

\_ Restricted investment accounts on the liabilities side form a collection of heterogeneous investment funds resembling a fund of funds; therefore, financial institutions holding such funds should be subject to the same capital requirements as are applicable to fund managers.

\_ The presence of displaced commercial risk and the practice of income smoothing have indirect implications for the Islamic bank's capital adequacy, which a regulator may take into account when determining the CAR.

\_ Islamic banks acting as intermediary can face a moral hazard issue. Since, as agent, the bank is not liable for losses but shares the profits with the investment account holder, it may have an incentive to maximize the investments funded by the account holder and to attract more account holders than it has the capacity to handle. This can lead to investment decisions that are riskier than the investment account holder is willing to accept. Such "incentive misalignment" may lead to higher displaced commercial risk, which necessitates higher capital requirements.

In this regard, Islamic banks surely differ from conventional banks in risk exposure in terms of the difference between the deposits nature, as in Islamic banks, theoretically,

Islamic banks accept investment deposits that are risk sharing contracts. The Islamic financial intermediary, as an agent (mudarib), would share profits with the depositor, but the depositor would bear losses that are the outcome of market conditions, but not of a mudarib's misconduct.

### **Determination of Risk weights.**

Assigning risk weights to different asset classes reflects the contractual relationship between the bank and the borrower. For conventional banks, most assets are based on debt, whereas for Islamic banks, the assets range from trade financing to equity partnerships; this fact changes the nature of risks. Some instruments carry additional risks that are not present in conventional lending instruments. Therefore, the calculation of risk weights is different for Islamic banks than for conventional banks: (a) assets based on trade are not truly financial assets and carry risks other than credit and market risks; (b) nonfinancial assets such as real estate, commodities, and ijarah and istisnah contracts have special risk characteristics; (c) Islamic banks carry partnership and profit- and loss sharing assets that have a higher risk profile; (d) Islamic banks do not have well-defined instruments for mitigating and hedging risk, such as derivatives, which raises the overall riskiness of assets.

### **2.6.3 Pillar 2: Supervisory review:**

The supervisory review has two objectives: to assess whether the banks maintain adequate capital necessary for the risks inherent in their business profile and business environment and to encourage banks to have policies and internal processes for assessing and managing capital adequacy that are commensurate with their risk profile, operations, and business strategy. Banks' management is accountable for ensuring that their bank has adequate capital.

Four key principles of supervisory review are issued to complement the supervisory guidelines already established (Graiss and Kulathunga 2007):

- (a) Banks must have a process for assessing their overall capital adequacy in relation to their risk profiles and a strategy for maintaining their capital levels.
- (b) Supervisors should review and evaluate banks' internal capital adequacy assessments and strategies as well as their ability to monitor and ensure compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the result of this process.
- (c) Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum.

- (d) Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored.

#### **2.6.4 Pillar 3: Market Discipline:**

Market discipline is based on disclosure requirements. Banks are to disclose reliable and timely information that market participants need in order to make well-founded risk assessments, including assessment of the adequacy of capital held as a cushion against losses and of the risk exposures that may give rise to such losses. The disclosure requirements are based on the concept of materiality— that is, banks must include all information where omission or misstatement could change or influence the decisions of the information users. The only exception is proprietary or confidential information, the sharing of which could undermine a bank’s competitive position. Except for large internationally active banks, disclosures are to be made on a semi-annual basis. Banks are expected to have a formal disclosure policy approved by the board of directors, including decisions on what will be disclosed, the frequency of validation reporting, and internal controls over the disclosure process.

The areas that are subject to disclosure are capital structure, capital adequacy, and risk exposure and assessment. The disclosures include qualitative and quantitative aspects. For each area of risk (for example, credit, market, operational, equity), qualitative aspects cover strategies, policies, and processes; the structure and organization of the risk management function; the scope and nature of the risk measurement and reporting systems; the strategies and policies for hedging or mitigating risks; and the processes and systems for monitoring their effectiveness. Quantitative aspects involve disclosures of specific values.

## Chapter Three

### Findings

#### 3.1 Risk Management:

IIFSB is considerable the official organization that puts the legislation to the Islamic financial institutions offering Islamic services all over the world , so In the term of risk management , they put some principles for each managing each type .

Table 3: Major Guidelines for risk management according to IIFSB

<b>Risk</b>	<b>Principle</b>	<b>Guideline</b>
General requirement	Principle 1.0	IIFSB shall have in place a comprehensive risk management and reporting process.
Credit risk	Principle 2.1	IIFSB shall have in place a strategy for financing, recognizing the potential credit exposures at various stages of the agreement.
	Principle 2.2	IIFSB shall carry out due diligence review.
	Principle 2.3	IIFSB shall have in place an appropriate methodology for measuring and reporting the credit risk exposures.
	Principle 2.4	IIFSB shall have in place Shariah-compliant credit risk mitigating techniques.
Equity investment risk	Principle 3.1	IIFSB shall have in place appropriate strategies, risk management, and reporting processes in respect to the risk characteristics of equity instruments.
	Principle 3.2	IIFSB shall ensure that their valuation methodologies are appropriate and consistent.
	Principle 3.3	IIFSB shall define and establish the exit strategies in respect of their equity investment activities.
Market risk	Principle 4.1	IIFSB shall have in place appropriate framework for market risk management.
Liquidity risk	Principle 5.1	IIFSB shall have in place a liquidity management framework.
	Principle 5.2	IIFSB shall assume liquidity risk commensurate with their ability to have sufficient recourse to Shariah-compliant funds.
Rate of return risk	Principle 6.1	IIFSB shall establish a comprehensive risk management and reporting process to assess the potential impact of market factors affecting rate of return on assets.

	Principle 6.2	IIFS shall have in place an appropriate framework for managing displaced commercial risk.
Operational risk	Principle 7.1	IIFS shall have in place adequate systems and controls.
	Principle 7.2	IIFS shall have in place appropriate mechanisms to safeguard the interests of all fund providers.

Source: IFSB (2005) [Note: IIFS – Institutions (other than Insurance Institutions) offering only Islamic Financial Service]

### 3.1.1 Credit Risk Management:

Generally credit risk management for Islamic banks is complicated further by additional externalities. Especially in the case of default by the counterparty, Islamic banks are prohibited from charging any accrued interest or imposing any penalty, except in the case of deliberate procrastination. Clients may take advantage by delaying payment, knowing that the bank will not charge a penalty or require extra payments. During the delay, the bank's capital is stuck in a nonproductive activity and the bank's investors-depositors are not earning any income.

Using collateral and pledges as security against credit risk is a common practice among all Islamic banks. The bank might ask the client to post additional collateral before entering into a murabahah transaction. In some cases, the subject matter of murabahah is accepted as collateral. Posting collateral as security is not without difficulties, especially in emerging markets. Typical problems include illiquidity of the collateral or inability of the bank to sell the collateral, difficulties in determining the fair market value on a periodic basis, and legal hindrances and obstacles in taking possession of the collateral. Due to weak legal institutions and slow processing, it becomes difficult for the bank to claim the collateral. In addition to collateral, personal and institutional guarantees are also accepted to minimize credit risk

In the above concern Islamic financial institutions should consider a certain objectives when investing and financing Islamic products on behalf of both depositors, investment account holders, and shareholders, so the board of directors must ensure that a bank's investing function fulfills three fundamental objectives:

- 1- Investment and financing assets should be intermediated on a sound and collectible basis.
- 2- Funds should be invested profitably for the benefit of shareholders and the protection of depositors.
- 3- The legitimate credit (intermediation) needs of economic agents or households should be satisfied.

The review of investing operations evaluates whether the process meets these criteria. In other words, it is crucial to assess whether investment and financing assets are well structured, policies are well reflected in internal procedures and manuals, staffing is



adequate and diligent in following established policies and guidelines, and the information normally available to participants in the process is timely, accurate, and complete

Therefore a review of the process should analyze credit manuals and other written guidelines applied by various departments of a bank and the capacity and performance of all departments involved in the credit function. It should also cover the origination, appraisal, approval, disbursement, monitoring, collection, and handling procedures for the various credit functions provided by the bank. Specifically, the review should encompass the following:

- 1- A detailed credit analysis and approval process, including samples of client application forms, internal credit summary forms, internal credit manuals, and client files;
- 2- Criteria for approving client's requests, for determining return policies and limits for assets at various levels of the bank's management, and for handling assets distributed through the branch network;
- 3- Collateral policy for all types of financial instruments and actual methods and practices concerning revaluation of collateral and files related to collateral;
- 4- Administration and monitoring procedures, including responsibilities, compliance, and controls;
- 5- A process for handling exceptions.

### **3.1.2 Liquidity risk management:**

There is a strong interactions between funding and market liquidity risk, thus In order to meet the shortfall in funding liquidity, an Islamic banks can opt to sell its assets in the Islamic money market. In this way, funding liquidity risk is mitigated through raising cash by the selling of assets. Insufficient market depth – due to the lack of an adequate number of players, as well as the insufficient quantity and volume of instruments in the market – can make it difficult for an Islamic bank to generate cash by selling assets, thus contributing to an increased funding liquidity risk. In stressed conditions, deterioration in market liquidity may either impact the liquidity of a particular type of instrument or affect a wide range of assets in the market.

On the other side Liquidity needs usually to be determined by the construction of a maturity ladder that comprises expected cash inflows and outflows over a series of specified time bands. The difference between the inflows and outflows in each period (that is, the excess or deficit of funds) provides a starting point from which to measure a bank's future liquidity excess or shortfall at any given time .Once its liquidity needs have been determined, the bank must decide how to fulfill them , a bank may increase its liquidity through asset management, liability management, or (and most frequently) a combination of both. In practice, a bank may meet its liquidity needs by disposing of highly liquid assets or assets that are nearly liquid, such as assets in the trading portfolio, or by selling less liquid assets, such as excess property or other investments. On the

liabilities side, this can be achieved by increasing short-term borrowings or short-term deposit liabilities, by increasing the maturity of liabilities, and ultimately by increasing capital:

For Islamic banks there is some major elements have to take into account in managing the liquidity risk , those elements are :

- 1- For Islamic banks the cash flow have to be categorized according to the types of products in Islamic banks As follow :
  - a) Known cash flows – the maturities and the amounts are known in advance. This category includes receivables from Murabahah, Ijarah, Ijarah Muntahia Bittamleek receivables and Diminishing Musharakah.
  - b) Conditional but predictable cash flows as in (Salam , Istisnah and dimensioning musharakah) conditionality is defined in terms of the type of contract or performance of work based on the agreed terms and conditions over an agreed period.
  - c) Conditional and unpredictable cash flows – are related to equity participations by the Islamic banks where the recovery of invested capital and possible levels of return on investment are conditional on the financial results of the activity in which the funds are invested, as in Musharakah and Mudarabah
- 2- For measuring liquidity risk, an Islamic bank should utilize a range of measurement techniques, time horizons and levels of granularity. Depending upon the nature, size and complexity of operations of an Islamic banks, The most widely used tool for measuring and monitoring liquidity risk in the Islamic banks has been the cash-flow mismatch/maturity gap for calculating the net funding requirement, which is based on an estimation of the amount and timing of future cash flows with respect to contractual or expected maturity. A minority of Islamic banks also utilize more sophisticated modeling techniques, such as static simulations, value at risk, liquidity at risk and others. As a starting point, pro-forma cash-flow statements are an important tool for adequately measuring and projecting the liquidity risk.
- 3- The maturity gap approach helps the Islamic banks to address the net funding requirement in each time horizon. The analysis of net funding requirements involves the construction of a maturity ladder and the calculation of a cumulative net excess or deficit in funding at a series of points in time. For calculating net funding requirements, the Islamic banks should analyze prospective cash flows based on assumptions of the future behavior of assets liabilities and off-balance sheet items listed above in the categorization of cash flow, and then calculate the cumulative net excess or shortfall over the time frame. For example, if there is a significant funding requirement two months from now, an Islamic bank may choose to acquire an asset maturing on that day, or seek to renew or roll over a liability. It is more difficult to offset a large gap as it gets closer.

### **3.1.3 Rate of return Risk management**

IFSB has put some rules to help Islamic banks managing the rate of return risk :

- 1- placing an appropriate systems for identifying and measuring the factors which give rise to rate of return risk.
- 2- gapping method as Islamic banks should employ the gapping method when calculating a rate of return for allocating positions into time bands with remaining maturities or re pricing dates, whichever is earlier. Fixed and floating rate assets of Islamic banks will be classified according to their receivable dates because the returns on these receivables represent the fund providers' direct and beneficial ownership of the assets. Actual cash flows may indicate a gap for a given time band, affecting the rate of return for that period. Depending on the complexity and the nature of their business operations, Islamic banks may employ techniques ranging from simple gap to advance simulation or dynamic approaches to assess future cash flow variability and net income. The estimates derived from selected approaches may provide acceptable approximations of periodic future earnings' variability; hence, the outcomes will yield different levels of expected returns to IAH.
- 3- cash flow forecasting for instruments and contracts where Islamic banks are required to simulate and assess their behavioral maturity, underlying assumptions and parameters, which must be reviewed periodically for reliability. The materiality of potential threats to future earnings and the usefulness of the resulting information shall be considered in determining the type and extent of forecasted behavior for Islamic banks.
- 4- Islamic banks are encouraged to employ balance sheet techniques to minimize their exposures using the following strategies, among others:
  - A) Determining and varying future profit ratios according to expectations of market conditions.
  - b) Developing new Shariah-compliant instruments; and
  - c) Issuing securitization tranches of Shariah permissible assets.

### **3.1.4 Displaced commercial risk management:**

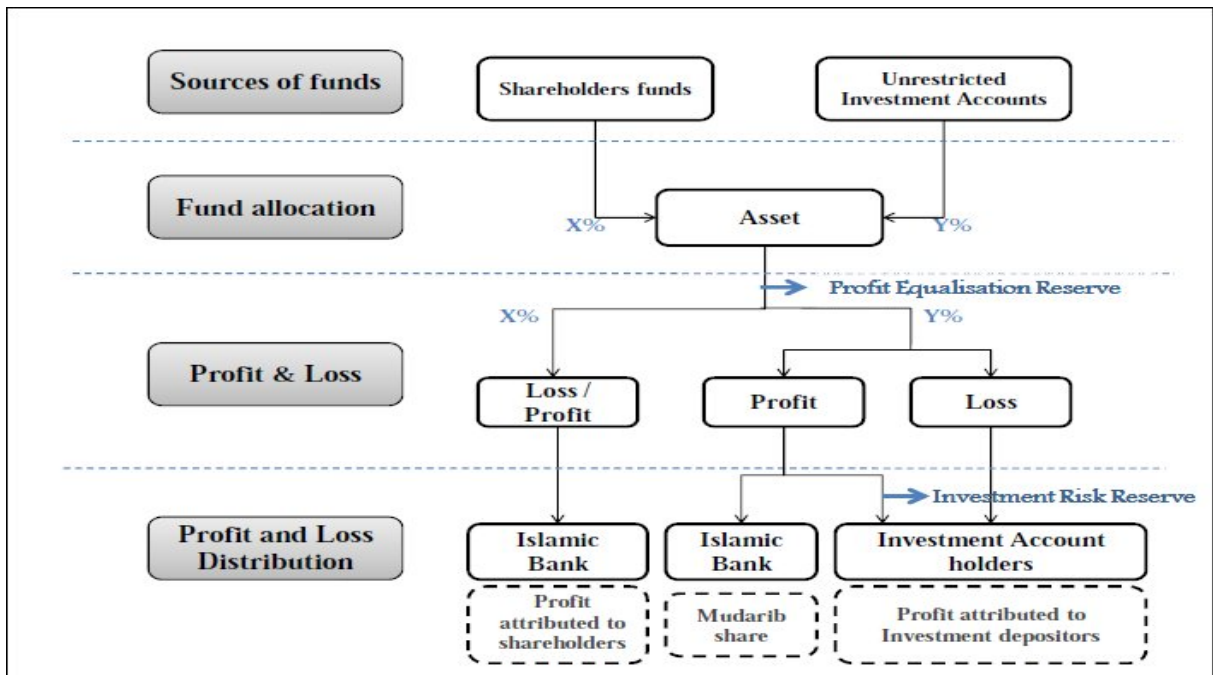
Islamic banks have in general two standard practices of retaining reserves to mitigate Displaced commercial risk: the retention of the Profit Equalization Reserve (PER) and the Investment Risk Reserve (IRR). The Profit Equalization Reserve is created from the total income before the profit allocation between shareholders and Investment Account Holders and the calculation of Mudarib Share. The retention of Profit Equalization Reserve reduces returns actually distributed to both parties. However, Investment Risk

Reserve is retained only from the profits attributed to Investment Account Holders (After deduction of Mudarib share).

Profit Equalization Reserve is needed to smooth a low rate of return and reduce the volatility of Investment Account Holders returns. However, the Investment Risk Reserve is needed to cover potential losses on assets invested with Investment Account Holders funds. In the contract in general, Investment Account Holders agree in advance on the proportion of their income that may be allocated to both reserves, which is determined by the management of the bank at their own discretion. A percentage of Profit Equalization Reserve and the totality of Investment Risk Reserve belong to Investment Account Holders but retained by the Islamic bank. The remainder part of accumulated Profit Equalization Reserve belongs thus to shareholders. These reserves are generally invested by the Islamic bank to generate additional returns to Investment Account Holders .

The following diagram represents how an Islamic Bank calculates the profit attributed to Shareholders and Investment Account Holders and illustrates the retention of different Reserves (Profit Equalization Reserve and Investment Risk Reserve). The investment in Asset is jointly financed by investment funds and shareholders capital.

Figure 2 : calculations the profit attributed between shareholders and IAH and retention of ( PER and IIR )



Kaouther Toumi and jean Laurent viviani , Islamic Banks Exposure To Displaced Commercial Risk : Identification and measurement . University of Montpellier – Tunisia

Islamic financial service board have assign main standards for managing the displaced commercial risk :

- 1- Islamic banks shall have in place a policy and framework for managing the expectations of their shareholders and IAH. Where market rates of returns of competitors' IAH are higher than those of IIFSs' IAH, the Islamic banks will evaluate the nature and extent of the expectations of their IAHs and assess the amount of the gap between competitors' rates and their own IAHs' expected rates.
- 2- Islamic banks have to develop an appropriate level of the balances of PER (price-to-earnings ratio) , taking into consideration the essential function is to provide mitigation of displaced commercial risk. Some IIFS maintain the proportion relating to IAH in this reserve within the IAH equity, with the purpose of smoothing returns to IAH, and in particular, to enhance their returns if these are below those of competitors. This implies that there will be years in which the balance of this reserve will be increased, and others in which it will be depleted .

### **3.1.5 Operational Risk Management:**

Given the different sources in which operational risk can arise, a common standard for identification and management of these needs to be developed. Care needs to be taken to tackle operational risk arising in different departments/organizational unit due to people, process, and technology. As such a wide variety of guidelines and rules have to be spelled out. To do so, the management should develop an 'operational risk catalogue' in which business process maps for each business/ department of the institution are outlined. For example, the business process for dealing with client or investor should be laid out. This catalogue will not only identify and assess operational risk but also can be used for transparency by the management and auditors.

Given the complexity of operational risk, it is difficult to quantify it. Most of the operational risk measurement techniques are simple and experimental. The banks, however, can gather information of different risks from reports and plans that are published within the institution (like audit reports, regulatory reports, management reports, business plans, operations plans, error rates, etc.). A careful review of these documents can reveal gaps that can represent potential risks. The data from the reports can then be categorized into internal and external factors and converted into likelihood of potential loss to the institution. A part of the operational risk can also be hedged. Tools for risk assessment, monitoring, and management would include periodic reviews, stress testing, and allocation of appropriate amount of economic capital.

As there are various sources of operational risk, it needs to be handled in different ways. In particular, risk originating from people needs effective management, monitoring, and controls. These include :

- 1- establishing an adequate operating procedure. In way makes operational risk having a clear separation of responsibilities and to have contingency plans.

- 2- make sure that reporting systems are consistent, secure and independent of business.
- 3- The internal auditors play an important role in mitigating operational risk.

### **3.1.6 Market Risk Management:**

Islamic Banks shall develop a market risk strategy including the level of acceptable market risk appetite taking into account of contractual agreements with fund providers, types of risk-taking activities and target markets in order to maximize returns while keeping exposures at or below the pre-determined levels. The strategy should be reviewed periodically by Islamic Banks, communicated to relevant staff and disclosed to fund providers.

Islamic Banks shall establish a sound and comprehensive market risk management process and information system, which (among others) comprise:

- a conceptual framework to assist in identifying underlying market risks;
- guidelines governing risk taking activities in different portfolios of restricted IAH and their market risk limits;
- appropriate frameworks for pricing, valuation and income recognition; and a strong MIS for controlling, monitoring and reporting market risk exposure and performance to appropriate levels of senior management.

Given that all the required measures are in place (e.g. pricing, valuation and income recognition frameworks, strong MIS for managing exposures, etc.), the applicability of any market risk management framework that has been developed should be assessed taking into account of consequential business and reputation risks. Moreover Islamic banks should be able to quantify market risk exposures and assess exposure to the probability of future losses in their net open asset positions. The risk exposures in the investment securities are similar to the risks faced by conventional financial intermediaries, namely market price, liquidity and foreign exchange rates. In this regard, Islamic banks shall ensure that their strategy includes the definition of their risk appetite for these tradable assets and that this risk appetite is adequately supported by capital held for that purpose. On the other hand, In the valuation of assets where no direct market prices are available, Islamic banks shall incorporate in their own product programs a detailed approach to valuing their market risk positions. Islamic banks may employ appropriate forecasting techniques to assess the potential value of these assets.

Where available valuation methodologies are deficient, Islamic banks shall assess the need

(a) to allocate funds to cover risks resulting from illiquidity, new assets and uncertainty in assumptions underlying valuation and realization;

(b) to establish a contractual agreement with the counterparty specifying the methods to be used in valuing the assets

### **3.1.7 Equity Investment risk management:**

The IFSB have defined three main principle for managing the equity investment risk , as mentioned before , those principles are aiming to establish an adequate system for managing the equity investment risk in sales based contract used by Islamic banks such as murabahah or Mudarabah .So Islamic banks should have some rules as following :

First; in terms of risk management strategies and reporting process :

- 1- definition and set the objectives of, and criteria for, investments using profit sharing instruments, including the types of investment, tolerance for risk, expected returns and desired holding periods. For example, a Musharakah structure may contain an option for redemption whereby the IIFS as financiers have a contractual right to require their partner periodically to purchase, under a separate contract, a proportion of the Islamic bank's share in the investment at net asset value or, if the contract so specifies on some agreed basis (Diminishing Musharakah).
- 2- Policies, procedures and an appropriate management structure for evaluating and managing the risks involved in the acquisition of, holding and exiting from profit sharing investments. Islamic banks shall ensure proper infrastructure and capacity are in place to monitor continuously the performance and operations of the entity in which Islamic banks invest as partners. These should include evaluation of Shari`ah compliance, adequate financial reporting by, and periodical meetings with, partners and proper recordkeeping of these meetings.
- 3- Islamic banks shall identify and monitor the transformation of risks at various stages of investment lifecycles, for example, where the investee's business involves innovative or new products and services in the marketplace. Islamic banks that employ different financing instruments (where one of which include Musharakah) at different contract stages shall have appropriate procedures and controls in place, as different stages may give rise to different risks.
- 4- Islamic banks shall analyze and determine possible factors affecting the expected volume and timing of cash flows for both returns and capital gains arising from equity investments.

- 5- Islamic banks shall use Shariah compliant risk-mitigating techniques, which reduce the impact of possible capital impairment of an investment. This may include the use of Sharī'ah permissible security from the partner.

Second; in terms of valuation methodologies:

- 1- Islamic banks shall agree with the Muqārib and/or Musharakah partners., before entering into any agreement, on the appropriate valuation methods and periods for which the profit is to be calculated and allocated taking into account market practices and liquidity features. Valuation and accounting play an important role in measuring the quality of an equity investment, especially in a privately held entity, for which independent price quotations are neither available nor sufficient in volume to provide a basis for meaningful liquidity or market valuation. An appropriate and agreed method to be applied to determine the profit of the investment can be in the form of a certain percentage of either gross or net profit earned by the Muqārabah or Musharakah business, or any other mutually agreed terms. In the case of a change of the partnership's shares in a Musharakah (for example in a Diminishing Musharakah), the shares changing hands shall be valued at fair value or on some other mutually agreed basis.
- 2- Islamic banks shall assess and take measures to deal with the risks associated with potential manipulation of reported results leading to overstatements or understatements of partnership earnings. Reported earnings can be either gross or net. If for some reason the practices of smoothing profits over accounting periods and the establishment of escrow accounts to hold certain profit portions during the life of an equity investment are recognized and agreed by all the investing parties, the Islamic banks will incorporate their potential impact in the Islamic bank's overall earnings.
- 3- Islamic banks may agree with the Muqārib and/or Musharakah partners to engage independent parties where necessary to carry out audits and valuations of the investments. Provided these are properly executed and completed, these measures will help to ensure transparency and objectivity in valuation and in the distribution of profits and the determination of amounts to be redeemed.

Third; Strategies for extension or redemption:

- 1- Islamic banks shall establish the criteria for exit strategies, including the redemption of equity investments and the divestiture of under-performing investments. The criteria may include alternative exit routes and the timing of exit. In case of losses where improved business prospects exist, Islamic banks may indicate an investment extension period. Islamic banks' expectations should be based on their assessment that there are plausible grounds for believing that there will be a business turnaround during the period resulting in the view that the investment will, in time, recover and yield profits.



- 2- Islamic banks shall recognize that, as a going concern, an investee may not always have the liquidity necessary to enable making profit distributions. Hence, Islamic banks shall agree with the investment partner the methods for the treatment of retained profits by the investee.

## **3.2 Risk measurements:**

There is a difference between risk measurement and risk management. While risk measurement deals with quantification of risk exposures, risk management refers to “the overall process that a financial institution follows to define a business strategy, to identify the risks to which it is exposed, to quantify those risks, and to understand and control the nature of risks it faces

### **3.2.1 Credit risks measurements in Sales Based Contract**

Murabahah and other sales based facilities (istisnah, ijarah, Salam, etc..) dominate the asset side of Islamic banks, ranging from 80% to 100% of total facilities. Equity type facilities still constitute a negligible proportion of assets in most banks. Thus, credit risk – the losses in the event of default of the borrower or in the event of a deterioration of borrower’s repayment capacity – is the most dominant source of risks in an Islamic Bank as in conventional banks. The method of measurement of credit risks in conventional banks apply equally well to Islamic banks, with some allowance required to recognize the specific operational characteristics and risk sharing conventions of Islamic Financial Contracts. Credit risk can be measured based on both the traditional approach that assigns each counter party into a rating class (each rating corresponds to a probability of default) as well as more advanced credit value-at- risk (Credit VAR) methods discussed later in the section. The basic measurement principle under both these approaches is to estimate the expected loss on an exposure (or a portfolio of exposures) owing to specified credit events (default, rating downgrade, some nonperformance of specified covenant in the contract etc...) and also, to calibrate unexpected losses (deviations from the mean) that might occur at some probability level. Expected losses are provisioned and regarded as an expense that is deducted from income, while unexpected losses (up to a tolerance level) are backed up by capital allocation. The risk weights attached to various exposures on the bank’s asset side (in the New Basel Capital Accord, for example) in effect represent the banks’ or supervisor’s Judgment on the unexpected losses on the exposures that should be absorbed by capital. The calculation of loss – both expected and unexpected – in an individual loan will require estimates of:

- Probability of default (or probabilities of rating downgrades from one rating class to another);
- Potential credit exposures at default (or at the time of rating transition);
- Loss given default (or reduction in the value of the asset following a rating transition).

Proper measurement of these three components of credit risk, and calculating unexpected losses are the fundamental requirements of the New Basel Capital Accord (Basel II). Measurement of these components for the case of sales-based contracts – murabahah and salam – is discussed below. The default could be defined in the same way as for conventional Banks, based on financial condition of the borrower and the number of days the contract is overdue. Estimation of the probability of default is traditionally based on ex-ante assignment of ratings to counterparty exposures or a portfolio of exposures of a particular variety (such as all commodity murabahah for a class of goods). This can follow any one of the traditional approaches: credit scoring, industry analysis, cash flow/ financial statement analysis; A modern approach that can be used for larger listed companies is based on market information on equity prices.

Observed market value of firm's equity and estimated volatility of equity prices can be used to estimate the likelihood of default using the option pricing approach to bankruptcy prediction. In practice various methods can be combined during the risk management process in order to arrive at a credit rating and the associated probability of default based on historical experience. The estimation of probabilities – or correct assignment of ratings – will however require historical data on loan structure and performance, borrower characteristics and on broader industry and macroeconomic environment; and thus the ratings will change over time as financial conditions and environment changes.

In many countries, supervisory authorities have relied on five rating categories – one high quality (performing loans) and four low-quality ratings (watch, substandard, doubtful, and loss),-- and assigned specified provisioning percentages for each rating to reflect expected losses. Thus, total provisions as a percentage of loans, or share of loans classified as bad and doubtful (non performing loans), or non-performing loans net of provisions as a percentage of total loans, etc. are the commonly used ex-post measures of credit risk that applies to all banks.

Many large internationally active banks have developed their own internal rating systems that allow for more ratings categories. An examination of a sample of Islamic banks suggests that they typically compile and disclose classification of various Islamic facilities according to asset quality based on categories typically used by supervisors such as, “current”, “substandard”, “doubtful”, etc. But only a few Islamic banks disclose internal or external ratings of assets or of details of provisions for different facilities and other more detailed credit risk measures.

Since the ratings assigned to counterparty could change overtime due to changes in circumstances, credit risk measurement falls into two types – Default Model and Mark to Market Model. Default Model recognizes only two states of the world: a firm is either performing or defaults; in the Mark to Market Model, a firm's credit rating changes from one rating class to another with some probability over a time horizon, and this changes the present value of the loan (i.e., expected cash flows discounted by the risk adjusted discount rate corresponding to the new rating class will change as the loan migrates from one rating to another).

The computation of expected and unexpected losses, the core of risk measurement, will of course depend upon the model chosen, which in turn depends upon data availability. Losses will clearly depend upon the potential credit exposures at the time of default (exposure at default (EAD)). In the case of simple contracts with a specified schedule of repayments, exposures at the time of default will depend mainly on contractual terms relating to scheduling of Installments and the size of deferred payments net of any initial advance payment or projected prepayments if allowed.

In general, exposure at default would be facility specific, depending upon the extent of discretion that the borrower can exercise in drawing down lines of credit, prepaying already drawn accounts, or any specific events that affect the value of contingent claims (e.g., guarantees to third parties). In murabahah, and salam Contracts, exposure at default in most cases would simply be the nominal value of the contract. In long-term ijarah, and istisnah contracts, EAD will depend upon projected environmental factors that will be facility specific. Losses will ultimately depend upon the rate of recovery following default, or in a mark to market model, the reduction in the value of the loan if ratings change.

Loss given default (one minus recovery rate times exposure at default) is likely to depend upon ease of collecting on the collateral, value of the collateral, enforceability of guarantees if any, and most importantly on the legal environment that determines creditors rights and the features of insolvency regime. For example, the juristic rules for murabahah imply that “in case of insolvency, creditor should defer collection of the debt until he becomes solvent”. The precise interpretation of such considerations would determine the length of time needed to recover overdue debt. In addition, there could be additional legal risks owing to difficulties in enforcing Islamic Finance contracts in certain legal environments.

Moreover, the inability of Islamic Banks to use penalty rates as a deterrent against late payments could create both higher risk of default and longer delays in repayments.<sup>7</sup> Finally, the limitations on eligible collateral under Islamic Finance – or excessive reliance on commodities and cash collateral – may exacerbate market and interest rates risks generally, and reduce the potential recovery value of the loan if commodity collateral proves too volatile in value. For these reasons, LGD in murabahah facilities could be different, probably higher, than in conventional banks, thereby affecting size of losses and capital at risk.

Given the estimates probability of default, or probabilities of transition from one rating class to another (Transition Matrix), and the estimated loss given default (or change in value of loan for any given transition from one rating class to another), the expected and unexpected losses can be readily computed. For example, in the Default Model, expected loss is given by:

Expected Loss = P x LGD x Exposure,

Where LGD is expressed as a proportion of exposure. The unexpected loss can be calculated based on assumptions on the distribution of default and recoveries. Assuming

that LGD is fixed, and that borrowers either default or do not default, the default rate is binomially distributed, and the standard deviation of default rate is:  $\sigma = \sqrt{P(1-P)}$   
Therefore a measure of unexpected loss on the loan is:

$$\text{Unexpected loss} = Z\alpha\sqrt{P(1-P)} \times \text{LGD} \times \text{Exposure}.$$

**Z $\alpha$**  above is a multiple (for example, a normal deviate) that limits the probability of unexpected losses to a specified probability level. This is the value at-risk for this credit facility, representing the amount of capital needed to cover the unexpected loss in this exposure. In the case of Mark to Market Model, the calculation of expected loss and unexpected loss takes into account the prospects for both upgrades as well as downgrades of the loan, and considers the change in value of the loan for each possible change in the rating of a facility from its current level, and the corresponding probability of rating transition. While similar considerations apply in the case of salam contracts for calculating counter party credit risk, there is an additional commodity price risk embedded in these contracts that should be added to the credit risk.

The commodity price risk will arise even when the counter party does not default, and when there is default (e.g. Delivery of substandard good, or delayed delivery of good, etc) the commodity price risk could be included as part of the loss given default. Thus potential loss in a Salam contract is the sum of loss due to credit risk, and the loss due to commodity price risk when there is no credit risk. In addition there could be a correlation between these two types of risks (for example due to common factors such as draught that could affect both commodity price risk and counter-party credit risk), which is ignored for the time being for simplicity. In the absence of liquid commodity markets as well as Shariah-compatible hedging products to price risks, commodity price risk can be measured by calculating the value-at-risk of commodity exposures in different maturity buckets using historic data on prices. While commodity exposures can be treated as part of market risk measurement for capital allocation purposes, it is important to compute this market

risk separately for each salam contract or for a portfolio of salam contracts and add it to the credit risk so that the full risk in each contract (or portfolio of contracts) can be properly measured and taken into account in the pricing the contract (or the facility). Also, the estimated commodity price risk should be regularly monitored as price volatility could change over time due to shifts in macroeconomic and market – specific conditions.

### **3.2.2 Liquidity Risk measurement:**

adequately measuring and projecting the liquidity risk. Islamic banks should analyze liquidity gaps, breaking them down by type of product, business unit and currency, with appropriate forecasting of liquidity needs in various stress scenarios. In order to ensure the reliability of the forecasting process, Islamic banks should collect and aggregate relevant data, and verify that the data are processed and transferred correctly through various systems and channels. Islamic banks should also validate the forecasted cash flows and ensure that the data are complete and reconciled, with appropriate plausibility

checks. The validations and back-testing results must be properly documented and communicated to senior management for their information.

The maturity gap approach helps the Islamic banks to address the net funding requirement in each time horizon. The analysis of net funding requirements involves the construction of a maturity ladder and the calculation of a cumulative net excess or deficit in funding at a series of points in time. For calculating net funding requirements, the Islamic banks should analyze prospective cash flows based on assumptions of the future behavior of assets, liabilities and off-balance sheet items, and then calculate the cumulative net excess or shortfall over the time frame. Typically, an IIFS may find substantial funding gaps in distant periods and will endeavor to fill these gaps by managing the maturity of transactions so as to offset the gap.

For example, if there is a significant funding requirement two months from now, an Islamic bank may choose to acquire an asset maturing on that day, or seek to renew or roll over a liability. It is more difficult to offset a large gap as it gets closer. The Islamic banks should therefore collect the data for a range of time intervals so as to match the gap before it gets too close. An Islamic bank should be able to ensure that the remaining funding requirements, after the possible matching, are constrained to a limit which remains comfortably within its capacity to fund from the Islamic interbank market. Based on an Islamic bank's nature of operations, products and business model, commonly, in normal market conditions, it would not actively manage its net funding requirement beyond a period of six to eight weeks. Nevertheless, management may require information on the net funding requirement beyond this period, if necessary. For Islamic banks which are more active in medium- to-long term assets and liabilities, there will be a need for extended data and monitoring.

Evaluating the liquidity position and liquidity risk of an Islamic bank requires an analysis of the behavior of different cash flows under various market conditions. This behavior can be analyzed using various stress testing or "what-if" scenarios, to determine what the impact would be on cash stocks (i.e. cash balances) or cash flows. Stress testing helps to quantify potential liquidity gaps in specified stress scenarios using deterministic and stochastic cash flows and, therefore, should be linked with various actions and countermeasures. For example, if, on the basis of stress testing results, it is expected that the Islamic banks will find difficulty in closing its gap for a particular maturity, it can take different actions such as raising term funding, tapping alternative funding sources, or changing the asset mix or their maturities.

A common approach adopted by many Islamic banks is using different levels of difficulty in market conditions which can impact their position and management of liquidity. Thus, these scenarios range from measuring liquidity requirements in normal market conditions, in a liquidity crisis affecting one other Islamic bank in the market, and in a general market crisis. These scenarios may also build in different periods of times for which a stress might be expected. Such analysis should consider the role of Shariah-compliant supervisory liquidity support facilities in normal and stressed market

conditions. Islamic banks should also include sensitivity and scenario analyses in their stress testing. While sensitivity analyses test the dependence on a selected risk factor, scenario analyses simultaneously examine the effect of several risk factors on liquidity. The results of stress testing exercises should be the basis of setting limits, revising the strategy, policies and procedures for liquidity risk management in the Islamic banks. The IFSB's exposure draft on Guiding Principles on Stress Testing provides a comprehensive framework on approaches, strategies and best practices for stress testing in Islamic banks, and should be consulted for further information on this subject.

### **3.2.3 Equity Risks measurement in *Mudarabah* and *Musharakah* facilities :**

These are equity type facilities, typically a very small share of total assets in part reflecting the significant investment risks that they carry. In a sample of Islamic banks examined the share of *mudarabah* and *musharakah* facilities and traded equities varied from 0% to 24%, with a median share of about 3%. A measure of the potential loss in equity exposures that are not traded can be derived based on the standard recommended in Basel II (paragraph 350); Given the net equity exposures, the loss can be estimated by using the probability of default corresponding to a debt exposure to the counterparties whose equity is being held, and applying a fairly high loss given default such as 90 % to reflect the equity risks. A measure of both expected and unexpected loss (UL) could then be computed from these parameters. In addition, *mudarabah* facility may need to be assigned an additional UL due to operational risk factors, with the extent of operational risk adjustment depending on the quality of internal control systems to monitor *mudarabah* facilities on the asset side.

High quality monitoring would be very important in Islamic banks, since the finance provider cannot interfere in the management of the project funded on *mudarabah* basis. In the case of *musharakah*, the need for operational risk adjustment may be less, insofar as the bank exercises some management control. If the banks' equity interest in a counterparty is based on regular cash flow and not capital gains, and is of long-term nature linked to customer relationship, a different supervisory treatment, and a lower LGD could be used. If, however, equity interest is relatively short term, relies on capital gains (e.g. traded equity), a VAR approach, subject to a minimum risk weight of 300 % could be used to measure capital at risk ( as proposed in Basel II).

### **3.2.4 Market Risks and Rate of Return Risks measurement:**

The techniques of market risk measurement in the trading books of Islamic Banks should be broadly identical to those in conventional banks. The trading book, in Islamic Banks, however, is likely to be limited, to traded equities, commodities, foreign exchange positions, and increasingly various forms of *sukuk*. A large share of assets of Islamic Banks also consist of cash and other liquid assets, with such short-term assets typically exceeding short-term liabilities by a large margin, in part reflecting limited availability Shariah compatible money market instruments. Against this background, exposure to

various forms of market risk can be measured by the traditional exposure indicators such as:

- Net open position in foreign exchange;
- Net position in traded equities;
- Net position in commodities;
- Rate-of-return gap measures by currency of denomination;
- Various duration measures of assets and liabilities in the trading book.

Most Islamic Banks compute and often disclose liquidity gap measures – gap between assets and liabilities at various maturity buckets – and hence the computation of rate-of return or re pricing gap should be fairly straightforward.

More accurate duration gap measures may also be available in some banks. Duration measures are important indicators of financial soundness, but they are not readily available in many banking systems. Impact on earnings of a change in exchange rate, equity price, commodity price, or rates of return can be directly obtained by multiplying the appropriate gap or other exposure indicators by the corresponding price change. Such a simple approach will not, however, suffice for computing the impact of changes in interest rates on equity type exposures of fixed maturity (such as *mudarabah* and *musharakah*). The impact of changes in the rates of return on the expected rate of profits (i.e. *mudarabah* and *musharakah* income) would need to be first computed, or equivalently the equity exposures should be adjusted by a multiplicative factor (that a supervisor can specify) before computing gaps in each maturity bucket.

In the presence of longer maturity assets & liabilities, change in the present value of assets (in the sense of discounted value of projected future cash flow) due to shifts in rates of return would be a more accurate measure of market risk than the estimated change in earnings in a reference period, and this can be calculated using various duration gap measures.

Such gap measures may not, however, capture the maximum losses that could occur (at some probability level), particularly in Islamic Banks. They do not properly recognize other market related risks arising from changes in spread over benchmark rates, or twists in the yield curve, or shifts in market volatility, which could affect potential losses. For these reasons, market risk is commonly measured by various value-at-risk (VAR) measures. This is particularly important, given the likely importance of equities and commodities in Islamic Bank balance sheets, which have potential to cause large losses. For example, for both commodities and equities, VAR based on 99 % confidence level (one-sided confidence interval) could be computed. VAR could be based on quarterly equity returns (*mudarabah* or *musharakah* profit rate) net of a risk free rate, or quarterly or monthly charges in commodity prices.

In most Islamic Banks, the rate-of return risk in the banking book is likely to be much more important than market risk in the trading book. The rate-of-return gap and duration gap applied to the banking book would provide measures of exposures to changes in benchmark rates of return, and the impact of these changes on the present value of bank

earnings. For example, a simple stress test of applying a 1 % point increase in rates of return on both assets and liabilities maturing/ or being reprised/ at various maturity buckets would yield a measure of potential loss (or gain) due to a uniform shift in term structure of rate of return.

Alternatively, the impact on present value of earnings of shifts in rate of return can be calculated directly from duration measures:

Impact of change in rate of return =  $(DA-DL) \Delta Ir$

Where: DA = duration of assets

DL = duration of liabilities

$\Delta Ir$  = change in rate of return

Another important source of risk is the possible loss due to a change in the margin between domestic rates of return and the benchmark rates of return (such as LIBOR), which may not be closely linked to the domestic return. Many Islamic banks use an external benchmark such as LIBOR to price the mark up in murabahah contracts, in part reflecting the lack of reliable domestic benchmark rate of return. If domestic monetary conditions change requiring adjustments in returns on deposits and loans, but the margin between external benchmark and domestic rates of return shift, there could be an impact on asset returns. This is a form of “Basis risk” that should be taken into account in computing the rate-of return risk in the banking book (and also market risks). Existence of this basis risk highlights the importance of developing a domestic rate of return benchmark so that both deposits & assets can be aligned to similar bench marks.

### **3.2.5 Operational Risk measurement**

This is defined as “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This includes legal risk, but excludes strategic and reputation risk”.<sup>9</sup> Such risks are likely to be significant in Islamic Banks due to specific contractual features and the general legal environment. Specific aspects that could raise operational risks in Islamic banks include the following:

- (1) The cancellation risks in non binding murabahah and istisnah[?]a contracts.
- (2) Problems in internal control systems to detect and manage potential problems in operational processes and back office functions.
- (3) Technical risks of various sorts.
- (4) The potential difficulties in enforcing Islamic Finance contracts in a broader legal environment,
- (5) The risk of non-compliance with Shariah requirements that may impact on permissible income,
- (6) The need to maintain and manage commodity inventories often in illiquid markets, and
- (7) The potential costs and risks in monitoring equity type contracts and the associated Legal risks. In addition, increasing use structured finance transactions – specifically, Securitization of loans originated by banks to manage risks on the asset side – could



Expose banks to additional legal risks.

The three methods of measuring operational risks proposed in Basel II would need considerable adaptations in Islamic Banks owing to the specificities noted earlier. The use of gross income as the basic indicator for operational risk measurement could be misleading in Islamic Banks, insofar as large volume of transactions in commodities, and the use of structured finance raise operational exposures that will not be captured by gross income. In contrast, the standardized Approach that allows for different business lines would be better suited, but would still need adaptation to the needs of Islamic Banks. In particular, agency services under mudarabah, the associated risks due to potential misconduct and negligence, and operational risks in commodity inventory management, all need to be explicitly considered for operational risk measurement.

### **3.3 Standardized models in measuring different types of risks :**

#### **3.3.1 GAP Analysis :**

GAP analysis is an interest rate risk management tool based on the balance sheet. GAP analysis focuses on the potential variability of net-interest income over specific time intervals. In this method a maturity/re pricing schedule that distributes interest-sensitive assets, liabilities, and off-balance sheet positions into time bands according to their maturity (if fixed rate) or time remaining to their next re pricing (if floating rate) is prepared. These schedules are then used to generate indicators of interest rate sensitivity of both earnings and economic value to changing interest rates.

GAP models focus on managing net interest income over different time intervals. After choosing the time intervals, assets and liabilities are grouped into these time buckets according to maturity (for fixed rates) or first possible re pricing time (for flexible rates). The assets and liabilities that can be re priced are called rate sensitive assets (RSAs) and rate sensitive liabilities (RSLs) respectively, and GAP equals the difference between the former and the latter.

Thus for a time interval, GAP is given by,

$$\text{GAP} = \text{RSAs} - \text{RSLs}$$

Note that GAP analysis is based on the assumption of re pricing of balance sheet items calculated according to book value terms. The information on GAP gives the management an idea about the effects on net-income due to changes in the interest rate. For example, if the GAP is positive, then the rate sensitive assets exceed liabilities. The implication is that an increase in future interest rate would increase the net interest income as the change in interest income is greater than the change in interest expenses. Similarly, a positive GAP and a decline in the interest rate would reduce the net interest income.

### 3.3.2 Duration-GAP Analysis

Duration model is another measure of interest rate risk and managing net interest income derived by taking into consideration all individual cash inflows and outflows. Duration is value and time weighted measure of maturity of all cash flows and represents the average time needed to recover the invested funds. The standard formula for calculation of duration D is given by,

$$D = \frac{\sum_{t=1}^n CF_t \times t \times (1+i)^{-t}}{\sum_{t=1}^n CF_t \times (1+i)^{-t}}$$

Where:

(CF<sub>t</sub>) is the value of cash flow at time t, which is the number of periods the cash flow from the instrument is received, and

(I) is the instrument's yield to maturity. The duration analysis compares the changes in market value of the assets relative to its liabilities. Average duration gaps of assets and liabilities are estimated by summing the duration of individual asset/liability multiplied by its share in the total asset/liability.

A change in the interest rate affects the market value through the discounting factor (1+i)<sup>-t</sup>.

Note that the discounted market value of an instrument with a longer duration will be affected relatively more due to changes in the interest rate. Duration analysis, as such, can be viewed as the elasticity of the market value of an instrument with respect to interest rate.

Duration gap (DGAP) reflects the differences in the timing of asset and liability cash flows and given by,

$$DGAP = DA - u DL$$

Where DA is the average duration of the assets, DL is the average duration of liabilities, and u is the liabilities/assets ratio. Note that a relatively larger u implies higher leverage. A positive DGAP implies the duration of assets is greater than that of liabilities. When interest rate increases by comparable amounts, the market value of assets decrease more than that of liabilities resulting in the decrease in the market value of equities and expected net-interest income. Similarly, a decline in the interest rate decreases the market value of the equity with a positive DGAP. Banks can use DGAP analysis to immunize portfolios against interest rate risk by keeping DGAP close to zero.

### 3.3.3 Credit Value at Risk (VaR)

Used for market risk, Displaced Commercial risk.

Value at Risk (VaR) is one of the newer risk management tools. The VaR indicates how much a firm can lose or make with a certain probability in a given time horizon. VaR summarizes financial risk inherent in portfolios into a simple number. Though VaR is used to measure market risk in general, it incorporates many other risks like foreign currency, commodities, and equities. VaR has many variations and can be estimated in different ways. We outline the underlying concept of VaR and the method of estimating it below.

Assume that an amount  $A_0$  is invested at a rate of return of  $r$ , so that after a year the value of portfolio is  $A = A_0(1+r)$ . The expected rate of return from the portfolio is  $\mu$  with standard deviation  $\sigma$ . VaR answers the question of how much can the portfolio lose in a certain time period  $t$  (e.g., month). To compute this, we construct the probability distribution of the returns  $r$ . We then choose a confidence level  $c$  (say 95) percent. VaR tells us what is the loss ( $A^*$ ) that will

not be exceeded  $c$  percent of the cases in the given period  $t$ . In other words, we want to find the loss that has a probability of  $1-c$  percent of occurrence in the time period  $t$ . Note that there is a rate of return  $r^*$  corresponding to  $A^*$ . Depending on the basis of comparison, VaR can be estimated in the absolute and relative sense. Absolute VaR is the loss relative to zero and relative VaR is the loss compared to the mean  $\mu$ .

A simpler parametric method can be used to estimate VaR by converting the general distribution into a standard normal distribution. This method is not only easier to use but also gives more accurate results in some cases. To use the parametric method to estimate VaR, the general distribution of the rates of return are converted into a normal distribution in the following way

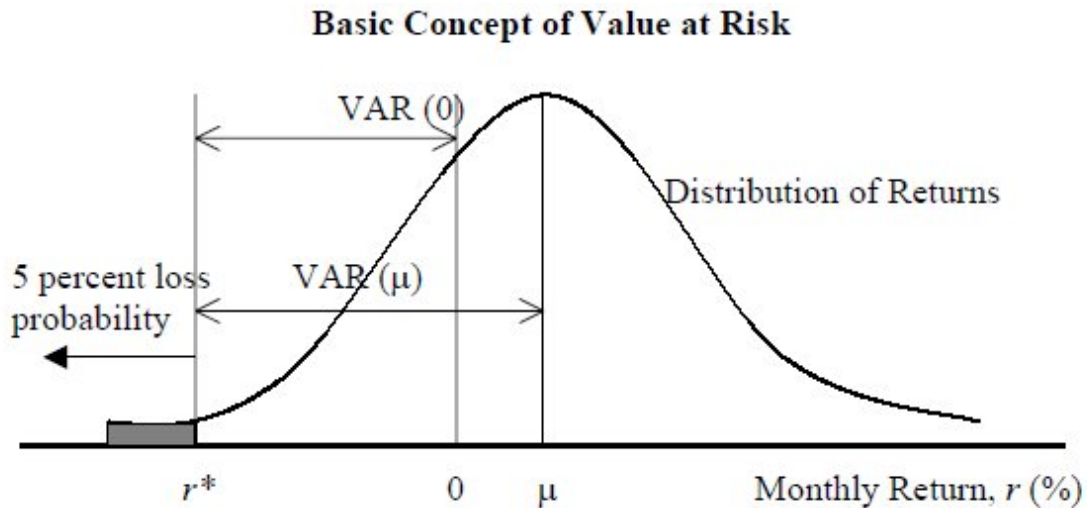
$$-\alpha = (-1 - r^* - \mu) / \sigma$$

Note that  $\alpha$  represents the standard normal distribution equivalent loss corresponding to confidence level of  $1-c$  of the general distribution (i.e.,  $r^*$ ). Thus, in a normal distribution,  $\alpha$  would be 1.65 (or 2.33) for a confidence level  $c=95$  (or  $c=99$  percent). Expressing time period  $T$  in years (so that one month would be  $1/12$ ), the absolute and relative VaRs using the parametric method are then given as

$$\text{VaR zero} = A_0 (\alpha \sigma(T)^{0.5} - \mu T) \quad \text{And} \quad \text{VaR mean} = A_0 \alpha \sigma(T)^{0.5}$$

respectively. Say, for a monthly series the VaR (zero) is estimated to be ‘y’ at 95 percent confidence level. This means that under normal market conditions, the most the portfolio can lose over a month is an amount of y with a probability of 95 percent.

Figure 3 : basic concept of VAR



**Example on VaR :**

Assume an investment portfolio marked to the market is valued at SR 100 million has expected rate of return of 5 percent and standard deviation of 12 percent. We are interested to estimate VaR for holding period of one month at 99 percent confidence interval. Using the symbols in the text, this information can be written as follows:

$A_0=100$  million,  $\mu = 5$  percent,  $\sigma = 12$  percent,  $c=99$ ,  $\alpha=2.33$ , and  $T=1/12$ .

Note that 99 percent confidence interval yields  $\alpha=2.33$  in a normal distribution. Given the above we can estimate the two variants of VaR as:

$$\begin{aligned} \text{VaR mean} &= A_0 (\alpha\sigma(T)0.5 - \mu T) \\ &= 100 \times 2.33 \times 0.12 \times (1/12)0.5 = 8.07 \end{aligned}$$

and,

$$\begin{aligned} \text{VaR zero} &= A_0 \alpha\sigma(T)0.5 \\ &= 100[2.33 \times 0.12 \times (1/12)0.5 - 0.05 \times (1/12)] = 8.07-0.42= 7.65 \end{aligned}$$

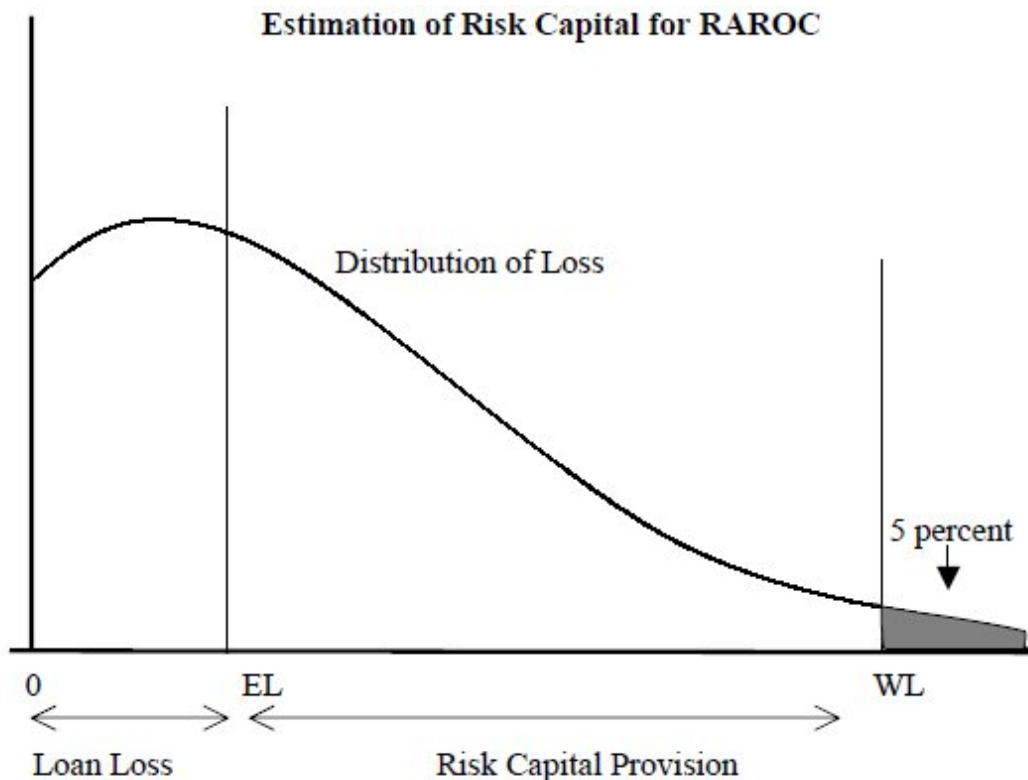
The result in the relative sense (i.e. relative to mean) implies that under normal conditions there is a 99 percent chance that the loss of the portfolio will not exceed SR 8.07 million over a month. In the absolute sense (i.e. relative to zero) this amount is SR 7.65 million.

### 3.3.4 Risk Adjusted Rate of Return (RAROC)

Used for market risk, credit risk and operational risk

Risk adjusted rate of return (RAROC), developed by Bankers Trust in the late 1970s, and quantifies risk by considering the tradeoff of risk and reward in different assets and activities. By the end of the 1990s, RAROC was considered a leading edge methodology to measure performance and a best practice standard by financial institutions. It gives an economic basis to measure all the relevant risks consistently and gives managers tools to make the efficient decisions regarding risk/return tradeoff in different assets. As economic capital protects financial institutions against unexpected losses, it is vital to allocate capital for various risks that these institutions face. RAROC analysis shows how much economic capital different products and businesses need and determines the total return on capital of a firm. Though RAROC can be used to estimate the capital requirements for market, credit and operational risks, it is used as an integrated risk management tool.

Figure 4: Estimation of risk capital for RAROC



From a loss distribution over a given horizon (say a year) expected losses (EL) can be estimated as average losses of the previous years. Worst case loss (WL) is the maximum potential loss. The worst case loss is estimated at a given level of confidence,  $c$  (e.g., 95 or 99 percent). The unexpected loss (UL) is the difference between the worst case and expected loss

(i.e.,  $UL=WL-EL$ ). Noting that while the expected loss is included as costs (as loan loss provision) when determining the returns, the unexpected losses arising from random shocks require capital to absorb the loss. The unexpected or worst case loss is estimated at a given level of confidence,  $c$ , as it is too costly for an organization to have capital for all potential loss. If the confidence level is 95 percent then there is a probability of 5 percent that actual losses will exceed the economic capital. The part of the loss that is not covered by the confidence level is the catastrophic risk that the firm faces and can be insured. Estimation of risk capital from a loss distribution function. RAROC is determined as,

$$RAROC = \text{Risk-adjusted Return} / \text{Risk Capital}$$

where risk-adjusted return equals total revenues less expenses and expected losses (EL), and risk capital is that reserved to cover the unexpected loss given the confidence level. While the expected loss is factored in the return (as loan loss provision), the unexpected loss is equivalent to the capital required to absorb the loss. A RAROC of  $x$  percent on a particular asset means that the annual expected rate of return of  $x$  on the equity is required to support this asset in the portfolio.

### **Estimating RAROC: An Example:**

Assume that a bank has funds of \$ 500 million, of which \$ 460million are deposits and the remaining \$ 40 million equity (Step 2 below shows how this amount is determined). Say the bank pays an interest rate of 5 percent to the depositors. As capital is used for unexpected losses, it is invested in risk-free asset (like government bonds) that has a return of 6 percent. The institution invests its remaining liability in projects that yields an expected return of 10 percent. The average loss per annum is estimated at \$ 5 million with the worst case loss of SR 45 million at 95 percent confidence interval. The annual operating costs of the bank is \$ 10 million. Given this information, we can estimate the RAROC for the portfolio in the following steps.

1. Estimate Risk Adjusted Return (= Total Revenue – Total Cost – Expected Loss)

Total Revenue = Income from Investment + Income from Bonds

$$=460 \times 0.10 + 40 \times 0.06 = 46 + 2.4 = 48.4$$

Total Cost = Payment to Deposits + Operating Costs

$$=460 \times 0.05 + 10 = 23 + 10 = 33$$

Expected Loss = 5

$$\text{Risk Adjusted Return} = 48.4 - 33 - 5 = 10.4$$

2. Estimate Risk Capital (=Worst Case Loss – Expected Loss)

$$= 45 - 5 = 40$$

3. Estimate RAROC (=Risk Adjusted Return/Risk Capital)  $\times 100$

$$=10.4/40 \times 100 = 26 \text{ percent}$$

A RAROC of 26 percent means that the portfolio has an expected rate of return on equity of 26 percent.

### 3.4 Managing the Capital adequacy according to the major approaches followed by the Islamic banks

#### The two different approach of Calculating CAR in Islamic banks:

- 1- The AAOIFI<sup>3</sup> Approach
- 2- The IFSB approach

#### 1-The first one: The AAOIFI approach :

AAOIFI “Accounting and Auditing Organization for Islamic Financial Institutions” According to AAOIFI, The methodology of calculating the CAR in conventional banks must differ from the applying in IIFS as the sources of funds are different in both conventional banks and Islamic banks.

Table 4: types of accounts in Islamic and conventional banks

Islamic bank	Conventional bank
Current Accounts	Current Accounts
Savings Accounts	Saving Accounts
Unrestricted Investment Accounts	Time Deposits, Certificate of Deposits
Equity: Share	Equity: Share
capital+ Reserves-Tier 1	Capital+ Reserves-Tier 1
Donated Land	Cumulative Preferred
Reserve1 (No Preferred Shares or Subordinated Debt allowed): Tier 2	Shares+ Subordinated Debt-Tier 2
No Tier 3	Tier 3 portion of subordinated debt available only for market risk

Source: Rima Turk Ariss and Yolla Sareddine- Challenges in implementing capital adequacy Guidelines to Islamic banks. 2007.

The above table show the differences between types of accounts in Islamic banks and conventional banks, which will clarify the idea of differentiating in calculations the CAR in both systems.

<sup>3</sup> AAOIFI : Accounting and Auditing Organization for Islamic Financial Institutions

AAOIFI explained that The sources and nature of funds available to Islamic banks differ from those of conventional banks as shown below . The funding sources to Islamic banks include owners' equity, current deposits, saving deposits, restricted investment account holders and unrestricted account holders' funds. The first three categories of funds are same as conventional banks but latter two categories are specific to the Islamic banks.

The two different types of investment accounts in Islamic banks are restricted accounts , which acts the accounts that directive through the account holders , therefore the bank has no authority to invest this money without referring to the account holder. So this types of account can't be considered as a part of bank equity or can't be treated as same as share holder equity. on the other hand the unrestricted investment accounts , which managed and controlled by the banks and the account holder have no control over it can be treated as same as shareholder equity , taking in account the differences in rights to vote and other similar factors . But the argue arise from the point of whether to consider this accounts as same as share holders equity and so it can be entitled in CAR calculation or not . according to 6th International Islamic Finance Conference 2008 paper by Nisar Ahmad the AAOIFI considered 50% weights for these funds in calculating the CAR but Rima and Yolla (2007) argued that the possible rationale for not giving 100% weights might be that investment depositors can withdraw their funds upon maturity, which reduces the base of the funds available to the bank. Whereas the owners' equity remains unchanged even if they withdraw their funds by selling their shares to other investors. Moreover, unrestricted investment accounts do not have voting rights, therefore, these funds are not considered part of equity. According to AAOIFI, unrestricted investments accounts lie in between deposits and equity.

On the other side the restricted accounts according to AAOIFI recommends that restricted investment accounts should be included as off-balance sheet items. The implication of such treatment is that these investment funds will not be included in the calculation of capital adequacy ratio.

Therefore In the AAOIFI's framework for capital adequacy, unrestricted investment account holders are considered to share part of the risks with shareholders for calculation of CAR. The proposed formula for CAR for an Islamic bank is as under:

$$\text{CAR} = \text{Total Capital} / \text{RWAC\&CA} + 50\% (\text{RWAUIA} / 18)$$

Where:

RWAC&CA: Average Risk weighted assets of owners' equity and current accounts  
RWAUIA : Average Risk weighted assets of unrestricted depositors' investment accounts

Rima and Yolla (2007) described that the limitation of the AAOIFI's approach is that it focuses on the sources of funds for Islamic banks whereas overlooking the importance of



detailed calculation of risk weighted assets. Chapra and Khan (2000)<sup>19</sup> stated that the AAOIFI perhaps formulated the CAR based upon accounting principles instead of systematic considerations. The discounting of the risk assets held against investment accounts by 50% may provide an opportunity for capital arbitrage.

## 2-The second; IFSB Approach:

Figure 5: IFSB principle for CAR

### BOX 13.1 IFSB Principles for Minimum Capital Adequacy Requirements (CAR)

The minimum capital adequacy requirements for Islamic banks shall be a CAR of not lower than 8 percent of total capital. Tier 2 capital is limited to 100 percent of Tier 1 capital.

In calculating the CAR, the regulatory capital as the numerator shall be calculated in relation to the total risk-weighted assets as the denominator. The total of risk-weighted assets is determined by multiplying the capital requirements for market risk and operational risk by 12.5 (which is the reciprocal of the minimum CAR of 8 percent) and adding the resulting figures to the sum of risk-weighted assets computed for credit risk.

The *Shariah* rules and principles whereby investment account holders provide funds to the Islamic bank on the basis of profit-sharing and loss-bearing *mudarabah* contracts instead of debt-based deposits mean that investment account holders would share in the profits of a successful operation but could lose all or part of their investment. The liability of investment account holders is limited to the capital provided, and the potential loss of the Islamic bank is restricted to the value or opportunity cost of its work.

However, if negligence, mismanagement, or fraud can be proven, the Islamic bank is financially liable for the capital of the account holders. Therefore, account holders normally bear the credit and market risks of the investment, while the Islamic bank bears the operational risk.

While the AAOIFI focuses on the sources of funds of an Islamic bank, the IFSB, however, goes a step further by considering the uses of funds and assigning appropriate risk weights to each asset item. The major contribution of the IFSB is to acknowledge that the uses of funds for Islamic banks, which are by nature *Shariah* compliant, differ from the typical asset side of the balance sheet for a conventional bank. The IFSB frame of work aims at:

- 1- Identifying the specific structure and contents of the *Shariah*-compliant products and services offered by Islamic banks not considered under Basel II or by the AAOIFI.
- 2-Standardising *Shariah*-compliant products and services by assigning risk weights to those that meet internationally acceptable prudential standards.
- 3-Setting a common structure for the assessment of Islamic financial institutions' capital adequacy requirements.
- 4- Including market risk not only in the trading book but also in the banking book of Islamic banks due to the nature of the banks' assets such as *Murabahah*, *Ijarah*, *Salam*, *Musharakah* and *Mudarabah*.

The recent standard modified by IFSB takes into consideration the specificity of investment account holders who share part of the risk with shareholders calculating the CAR as follows:

$$\text{CAR} = \frac{\text{Tier1} + \text{Tier2}}{(\text{RWA Credit risk} + \text{Market risk} + \text{Operational risk}) - (\text{RWA funded by PSIA Credit risk} + \text{market risk})}$$

Where :

-RWA(Credit risk+Market risk+Operational risk) The total risk weighted assets (RWA) include those financed by both restricted and unrestricted Profit Sharing Investment Accounts (PSIA).

-Credit and market risks include both for on- and off-balance sheet exposures. Where the funds are commingled.

- The RWA funded by PSIA are calculated based on their pro-rata share of the relevant assets. PSIA balances include PER and Investment risk reserve (IRR) or equivalent reserves.

The capital amount of PSIA is not guaranteed by the Islamic financial institution and any losses arising from investments or assets financed by PSIA are to be borne by the Investment Account Holders, and thus do not command a regulatory capital requirement. This implies that assets funded by either unrestricted or restricted PSIA should be excluded from the calculation of the denominator of the capital ratio.

## Chapter four

### Conclusion

Islamic banks face additional risks due to the nature of their balance sheet and Shariah compliance. Non-availability of financial instruments to Islamic banks is a major hindrance in their way to manage market risks as compared to the conventional banks. While some of the fiqh-related issues have to be resolved by Shariah scholars, setting up of infrastructure institutions needs to be done by the government and regulatory authorities in different countries. Obviously, owing to religious restrictions, the Islamic banks cannot enter the conventional banking market, but the conventional banks are offering the Islamic products simultaneously with their own products. Competition no doubt enhances efficiency and a level playing field is a prerequisite for a healthy competitive environment. A more level playing field for competition between Islamic and conventional banks in this regard cannot be ensured unless the Islamic banks have similar supporting infrastructure institutions. On the other side there is a need to introduce a risk management culture in Islamic banks. One way to introduce this culture is to initiate some form of internal rating system. Specifically, risk weighting of all their assets separately is needed. In the medium and longer-run these could evolve into more sophisticated systems. Initiation of such a system can be instrumental in filling the gaps in the risk management system and hence enhancing the rating of these by the regulatory authorities and external credit assessment agencies.

On the other side, the paper is covering a number of important areas concerning risk management issues in the Islamic financial industry. The introductory section covered among others the different types of risks in Islamic banks, followed by tools of managing those different types of risks and the measurement of each type separately and the common models for measuring risks such as GAP duration, GAP analysis, VAR and RAROC model. As well as emphasizing the capital adequacy in Islamic banks and how it can be measured with discussion of different opinion on the capitals tiers and what should be included and what shouldn't be in the capital tires. And finally a brief recommendation on the importance of applying Islamic financial system over a country instead of conventional one, and a recommendation on Egypt as a potential market for growing in Islamic banking sector .

## Chapter five

### Recommendation

The recent economic crisis, known as subprime mortgage crisis was one of the hardest crisis, crashes the world's economic since the great depression in 1929. the crisis was an outcome of generally accepted reasons for an abrupt failure in financial markets mainly attributed to the insufficient regulation on the mortgage loan . The point is that there is not so much complication in the logic and structure of the basic financial instrument, rather than the endless innovation upon them have complicated the system .

Back to the main reasons on the crisis is the speculation and complicated financial innovation such as swaps and options that was unregulated. Although head of American federal reserve banks Alan Greenspan in 2001 decrease the interest rate to be 1% in order to make the economic more stronger and productive but the destroyable financial innovation left unregulated leads to the crisis occurring .

The Islamic financial system can be an ideal alternative because it mainly focus on turned the money into a real production system through different type of contracts that will reflect on the overall economy of any country. And this is exactly what each one of us really wants. An example to show what is beyond applying of such system . people are working almost more than half of their life for two reasons, first is to consume and second to save for future consumptions or disasters but the problem is arising when increasing the prices of goods is not as the same increasing in people income because not all saving is going to real production so people will seek for more savings and the same cycle will remain. Assuming constant of country natural resources like oil and gold that can be make a price stability, in Islamic based financial system , the system is based mainly on using money as a tool to be used in production so people will consume and save money , and savings will be used in production so the supply will increase and goods prices will never rise with the same ratio as in conventional system .

The above example is showing how Islamic based financial system will reflect on an country's economy in an efficient and effective way as is uses the money as a tool represent country's resources not an objective represent itself .

On the other hand and specifically the term risk management in Islamic financial institutions. There is some recommendation in Islamic banks working in Egypt :

- 1- Establishing a separate entity that regulate and supervise the Islamic banks , to be responsible for regulating the banks in terms of Sharia compliance principles. In corresponding with IFSB and AAOIFI .

- 2- Put a clear definitions to prohibited terms in Islam like riba and gharar ..etc to avoid miss conduct of future Islamic financial innovation .
- 3- open the door for scholars for more financial innovations comply with Islamic Sharia .
- 4- develop a new entity in Islamic financial institutions from different type of expertise concerning the analyzing of Feasibility studies in istisnah , musharakah and ijarah contracts.

Finally , its non sense to expect Islamic finance to change the conventional finance overnight , since the conventional finance have come to such an abrupt crumble, the logical , if not prudent proposition would be use Islamic finance as a way of saving what can be saved , the principle of Islamic finance and economic philosophy may be used now to start the recovery programs .

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# A ppendix

## Abbreviation

PLS	Profit and loss sharing
IAH	investment account holder
MPO	Murabahah for the Purchase Orderer
IRB	Internal Ratings-Based approach
PD	probability of default
LGD	loss given default
EAD	exposure at default
M	maturity
SBP	state bank of Pakistan
IFSB	Islamic financial service board
PER	Profit Equalization Reserve
IRR	Investment Risk Reserve
MIS	Management Information System
IIMM	Islamic Interbank Money Market
LIBOR	London Interbank Offered Rate
BOD	Board of directors
CAR	Capital Adequacy Ratio
IIFS	Institutions (other than Insurance Institutions) offering only Islamic Financial Service
PER	price-to-earnings ratio
VAR	Value at Risk
EAD	exposure at default
UL	unexpected loss
RSLs	rate sensitive liabilities
RSA	rate sensitive assets
RAROC	Risk Adjusted Rate of Return
AAOIFI	Accounting and Auditing Organization for Islamic Financial Institutions
PSIA	profit sharing investment account

Case Study  
Faisal Islamic bank  
Financial year 2010