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Identifying Operational Risk Exposures in Islamic Banking

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I. Introduction

Operational risk management in financial institutions has undoubtedly attracted more attention from the regulators, practitioners, and also academics over the last decade. One of the reasons is because of the huge losses incurred by a number of financial institutions such as Barings, Daiwa and Merril Lynch, due to the malfunctioning of their operational risk management (Hoffman, 2002; Hull, 2007; Hussain, 2000). Having learnt the lessons from the current financial failures, regulators and practitioners have, therefore, seriously taken the issue. In spite of the wide range of areas and issues in operational risks that need to be catered, attempts to define and classify operational risk have been made by several institutions, most notably by Basel Committee on Banking Supervision (BCBS), which proposed a definition of operational risk through its consultative document on operational risk (BCBS, 2001).

The industry has a wide range of responses to the definition proposed by BCBS. Despite the criticisms received from the industry, a positive side of the proposal is that banks started to realise the importance of managing operational risk, and therefore started to put aside a certain percentage of capital for operational risk, in addition to credit and market risk.

In Islamic banking industry, the need to cater operational risk issue has also been discussed by Akkizidis and Kumar (2008), Archer and Haron (2007), Hossain (2005), Iqbal and Mirakhor (2007), Khan and Ahmed (2001), and Sundararajan and Errico (2002). It does not come as a surprise since Islamic banks operate in a similar, if not the same, business environment. Khan and Ahmed (2001) show that operational risk is relatively higher and serious than credit risk and market risk for Islamic banks. Unfortunately, there has not been any single literature which thoroughly tackles the issue. This may be due to the fact that operational risk carries complexities and it is relatively new area which calls for more academic inquiry. This is the reason from which this paper is developed.

The paper starts with a discussion on the nature and origin of an Islamic bank and analyse why an Islamic bank has a distinct operational aspect, as compared to the conventional one. It also attempts to examine the operational risk exposures in Islamic banks. The following section discusses how to identify and conduct a mapping of operational risk in Islamic banks, which are also different from conventional ones on the structure of their financial contracts. Thus, they bring different features of operational risks in different

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contracts. This is the issue which is discussed in the subsequent sections. The analysis would not have been complete without tackling the issue of having adequate capital in order to cover operational losses. Finally, the last section presents the concluding remarks.

II. Nature and Origin of Islamic Banks

The way financial system is set up can be very central for efficient resource allocation. History has shown that the financial system is determined by the nature of financial intermediation. The rapid development in financial system has made financial intermediary more important in the economy. The acquisition and processing of information about economic agents, the packaging and repackaging of financial claims, and financial contracting are among the activities that differentiate financial intermediation from other economic activities (Mishkin, 2004). The nature of intermediation has changed drastically over the last three decades due to the changes in macroeconomic policies, liberalisation of capital accounts, deregulation, and advances in financial theory as well as breakthroughs in technology. Lending based operations which characterise traditional banking activity has been replaced by more fee-based services that bring investors and borrowers directly in contact with each other. Financial intermediation in the form of traditional banking—mainly based on the operations of lending—has declined considerably in developed countries where market-based intermediation has become dominant.

In Islamic history, financial intermediation has established a historical record and has made significant contributions to economic development over time. The simplest manifestation of financial services within the early Muslim states took the form of money-changers (*Sayarifah*; sing., *Sairafi*) who were also partially engaged in the holding of deposits and the short-term financing of trade (Chapra and Khan, 2000). Yet a more sophisticated form of banking finance for trade and government was represented by the *Jahabidhah* (sing., *Jahbadh*) who practiced much of the modern financing activities under the supervision of the Muslim state (Chachi, 2005; Heck, 2006). In the highly developed market economy of the Abbasid State, *Jahabidhah* bankers proliferated throughout the state, even though they were mostly of Jews who enjoyed the status of *Ahl al-Kitab* origin (People of the Book) within the early Muslim state. The *Jahabidhah* were basically trade vendors who concurrently practiced business of financing and commercial transactions to others. Banking operations were therefore ancillary to primary mercantile operations, yet they seemed to have grown to sizeable banking functions particularly when the *Jahabidhah* accepted deposits in efforts to augment their own businesses. The high streets of Basra were so much supplied with money-changers and *Jahabidhah* that the banking network in Basra was rightly called by a Western historian ‘the Wall-Street of the Middle Ages’ (Heck, 2006). The famous Persian

historian, Nasir-i Khusraw, was reported to have estimated the number of *Jahabidhah* bankers in the state of Isfahan alone at 200 financial institutions (Heck, 2006). It was such a complex network of banking activities that the call for appropriate government supervision and regulation was acknowledged by the Islamic state. To this effect, the Abbasid State established a central banking agency in year 316 H/ 929 A.D called *Diwan al-Jahabidhah* to foresee the performance and growth of banks within the empire. A similar central bank was established in Egypt by the Fatimid State by the name *Dar al-Mal* in the commercial capital of al-Fustat to supervise an equally intense *Jahabidhah* banking activity in Fatimid Egypt. Among the most commonly practiced banking instruments were the *Sakk* (the Arabic root of 'cheque') and the *Suftajah* (which combined features of traveller cheques and letters of credit), the *Hawalah* (which is a means credit transfer), *Wadi'ah* (i.e. deposit), *Ruq'ah* (which was a sort of promissory note). The use of cheque (*Sakk*) was particularly known since the time of the Rightly-Guided Caliphs. A renowned historian, Ibn Abdel-Hakam, reported that Umar ibn al-Khattab paid for the grains delivered to the state warehouses by cheque and that he used to pay government wages by cheques signed by his treasurer Zaid ibn Thabit (Heck, 2006).

The existence of an Islamic bank in the present days, hence, is believed to be a modern transformation of *Jahbadh* (Chachi, 2005; Chapra and Khan, 2000; Heck, 2006). As a matter of fact, such transformation started to materialise in Mit Ghamr, Egypt from 1963 to 1967 when there was an initiative by Mit Ghamr Savings Bank to mobilise small savings from the rural sector largely through savings account without any interest payment to the account holders. It was followed by the establishment of Nasser Social Bank in 1971, Dubai Islamic Bank and Islamic Development Bank as the first international Islamic financial institution in 1975. Moreover, Islamic banking industry witnessed a very rapid growth surpassing US$ 100 billion worth during 1980–1990 (Iqbal and Molyneux, 2005: 64).

Having been regarded as an alternative financial intermediary with profit and loss sharing contract (in *Mudarabah* and *Musharakah* contract) as its cornerstone, an Islamic bank is, theoretically, expected to bring more stabilisation and efficiency in resource allocation. In addition to that, an Islamic bank is also equipped with contracts which may, slightly, look similar to what a conventional bank has been commonly practising; *i.e.* debt financing (in *Murabahah* contract). Nevertheless, the nature of debt in an Islamic bank is qualitatively different from that of conventional bank since debt contract in an Islamic bank requires to be tied to some underlying assets (Ahmed, 2005 and Khan, 1995). Furthermore, a debt contract in Islamic financing scheme is not a *Riba*-based contract, in contrast with the concept of a debt contract in conventional perspective. Consequently, the distinctive contractual structure that an Islamic bank embodies necessitates different treatment on the management of the operational system of an Islamic bank.

III. Operational Risk Exposures in Islamic Banks

As a modern form of *Jahbadh*, an Islamic bank is an institution offering financial services which conforms with *Shariah*. A set of shariah principles governing the operations of Islamic banks are (i) prohibition of dealing with interest (*Riba*); (ii) financial contracts must be cleared from contractual uncertainty (*Gharar*); (iii) exclusion of gambling (*Maysir*) in any financial activity; (iv) profit must not be originated from *Haram* economic and financial activities (prohibited industries such as those related to pork products, pornography, or alcoholic beverages); (v) each financial transaction must refer to a tangible, identifiable underlying asset; and (vi) parties to a financial transaction must share in the risks and rewards attached to it. The principles mentioned above must be, conceptually, inherent in Islamic banks, in order to distinguish them from conventional banks.

With regard to operational risk, Islamic banks face the same challenges as conventional ones, to the extent that they offer financial services in various banking activities (Archer and Haron, 2007; and Hossain, 2005). At this state, the challenge is fairly similar for all financial intermediaries, whether *Shariah*-compliant or not. Nevertheless, the challenges are more sophisticated for Islamic banks since the financial activities and the features of the financial contracts are substantially different. Islamic Financial Services Board (IFSB) clearly mentions in its publication that Islamic banks are exposed to "a range of operational risks that could materially affect their operations" (IFSB, 2007a: 22). Further, it is argued that operational risks are likely to be more significant for Islamic banks due to their specific contractual features (Fiennes, 2007; Greuning and Iqbal, 2008; Iqbal and Mirakhor, 2007; Khan and Ahmed, 2001; Kumar, 2008; Sundararajan and Errico, 2002; Sundararajan, 2005).

Unlike the Basel 2's definition on operational risk which states "operational risk is the risk of loss resulting from inadequate or failed internal processes, people or system, or from external events" (BCBS, 2001: 2); in Islamic banks, operational risk is associated with the loss resulting from "inadequate or failed internal processes, people and system, or from external events, including losses resulting from *Shariah* non compliance and the failure in fiduciary responsibilities" (IFSB, 2005a: 26). It is understood that the definition of operational risk in Islamic banks entails legal risk (Archer and Haron, 2007; Cihak and Hesse, 2008; Djojosugito, 2008, Fiennes, 2007; Khan and Ahmed, 2001; Sundararajan, 2005), and also reputational risk (Fiennes, 2007; Akkizidis and Kumar, 2008; Standard & Poor's, 2008). The foremost distinctive feature of this definition, as compared to the definition by Basel 2, is the inclusion of *Shariah* non-compliance risk and fiduciary risk. As a matter of fact, *Shariah* non-compliance risk is considered to have a significant portion in operational risk (IFSB, 2007b: 6).

Shariah non-compliance risk is the risk arising from Islamic banks' failure to comply with the *Shariah* rules and principles determined by the *Shariah* Board or the relevant body in

the jurisdiction in which the Islamic bank operates (IFSB, 2005a). The failure to comply with such principle will result in the transaction being cancelled, and hence the income or loss can not be recognised. Moreover, fiduciary risk is the risk that arises from Islamic banks' failure to perform in accordance with explicit and implicit standards applicable to their fiduciary responsibilities (IFSB, 2005a).

Therefore, a failure in maintaining fiduciary responsibilities will result in the deterioration of Islamic banks' reputation (Hamidi, 2006). A reputational damage could eventually cause a withdrawal of funds which would result in a liquidity crisis. It could also make customers stop requesting financing from Islamic banks, triggering a downturn in profitability. Therefore, in order to keep good reputation, it is suggested that Islamic banks need to do two things; firstly, to ensure that their financial products are *Shariah* compliant (Greuning and Iqbal, 2008; Iqbal and Mirakhor, 2007), secondly, to effectively maintain their fiduciary roles (Muljawan, 2005).

The spotlight above explains why operational risk management in Islamic banks is not similar to that in conventional banks. There are a number of dimensions need to be added in the analysis. Although it is argued earlier that the challenges are somewhat similar, they are only to the extent that Islamic banks and conventional banks are dealing with various banking activities. To a greater extent, operational risk management in Islamic banking requires more thorough understanding of the sources of operational risk from which the loss could occur. It is, therefore, proposed that operational risk exposures in Islamic banks could appear based on the following major sources: (i) *Shariah* non-compliance risk; (ii) fiduciary risk; (iii) people risk; (iv) technology risk, and (v) legal risk.

3.1 *Shariah* Compliance Risk

IFSB guiding principles of risk management for institutions offering Islamic financial services—other than insurance institutions, clearly mentions the definition of *Shariah* non-compliance risk. It is the risk which arises from "IIFSs'[1] failure to comply with the *Shariah* rules and principles determined by the *Shariah* board of the IIFS or the relevant body in the jurisdiction in which the IIFS operate" (IFSB, 2005a: 26). For Islamic banks, to be *Shariah* compliant is paramount. According to IFSB Principle 7.1, Islamic banks shall have in place adequate system and controls, including Shariah Board/Advisor, to ensure compliance with *Shariah* rules and principles (IFSB, 2005a: 27). Such compliance requirements must be pervasively infused throughout the organisation as well as in their products and activities. *Shariah* compliance is considered by IFSB as a higher priority in relation to the other

1 IIFS stands for institutions (other than insurance companies) which offer only Islamic financial services. In many literatures, the term "Islamic banks", "IIFS" or "Islamic financial institutions" are used interchangeably. IFSB opts to use IIFS in its publication.

identified risks, since violation of *Shariah* principles will result in the transactions being cancelled or income generated from them shall be considered as illegitimate.

The need to ensure compliance with *Shariah* in operational risk management is vital (Aziz, 2006) and it must encompass the products, activities, and contract documentation—with regard to formation, termination and elements which might possibly affect contract performance such as fraud and misrepresentation. Furthermore, the degree of *Shariah* compliance, as IFSB (2005a) suggests, has to be reviewed, at least, annually which can be performed by a credible party, either from a separate *Shariah* control department or as part of the existing internal and external audit. The main objective is to ensure that (a) the nature of Islamic banks' financing and equity investment; and (b) their operations are executed in adherence to the *Shariah* principles.

In the event that *Shariah* non compliance occurs, either in the products or activities, Islamic banks need to keep record of the profits out of it. The record will help Islamic banks assess the probability of similar cases arising in the future. Further, historical reviews and data of potential areas of *Shariah* non-compliance will enable Islamic banks to make an assessment on the potential profits which can not be recognised as legitimate profits. In order word, potential loss could be managed, hence, reduced to a minimum level.

With respect to *Shariah* requirements in financing contracts, albeit the diversity of interpretations prevalent in the industry, Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI) has already issued its latest *Shariah* standard that could be referred to by Islamic banks. In sum, *Shariah* compliant financing—in six different contracts, needs to fulfil the following *shariah* requirements (AAOIFI, 2005):

(a) *Murabahah* and *Ijarah* contracts:

- The asset is in existence at the time of sale or lease or, in *Ijarah*, the lease contract should be preceded by acquisition of the usufruct of the leased asset;
- The asset is legally owned by Islamic banks when it is sold;
- The asset is intended to be used by the buyer/lessee for activities or business permissible by *Shariah*; if the asset is leased back to its owner in the first lease period, it should not lead to contract of *'Inah*, by varying the rent or the duration;
- In the event of late payment, there is no penalty fee or increase in price in exchange for extending or rescheduling the date of payment of accounts receivable or lease receivable, irrespective of whether the debtor is solvent or insolvent.

(b) *Salam* and *Istisna'* contracts:

- A sale and purchase contract cannot be inter-dependent and inter-conditional on each other. This is for the case of *Salam* and parallel *Salam* or *Istisna'* and parallel *Istisna'*;
- It is not allowed to stipulate a penalty clause in respect of delay in delivery of

a commodity that is purchased under *Salam* contract. However, it is allowed under *Istisna'* or parallel *Istisna'*;

- The subject matter of an *istisna'* contract may not physically exist upon entering into the contract.

(c) *Musharakah* and *Mudarabah* contracts:

- The capital of the Islamic banks is to be invested in *Shariah* compliant investments or business activities;
- A partner in *Musharakah* cannot guarantee the capital of another partner or a mudarib guarantees the capital of the *Mudarabah*;
- The purchase price of other partner's share in a *musharakah* with a binding promise to purchase can only be set as per the market value or as per the agreement at the date of buying. It is not permissible to stipulate that the share be acquired at its face value.

Clearly, it is vital for Islamic banks to abide by the *Shariah* principles in every aspect of their financial transactions. In addition to that, the process of structuring the contracts is also very important. In other word, sequence in structuring certain financial products could determine the degree of *Shariah* compliance, since a few contracts could be used as legal devices to circumvent certain *Shariah* principles.

3.2 Fiduciary Risk

Islamic banks are liable for losses arising from their negligence, misconduct or breach of their investment mandate; the risk of losses which arises from such events is characterised as a fiduciary risk. In other word, fiduciary risk is an indication of failure to "perform in accordance with explicit and implicit standards applicable to their fiduciary responsibilities" (IFSB, 2005a: 26). The indication of such failure can be seen from the high degree of their earnings volatility. As a result of losses, Islamic banks may become insolvent and as a consequence unable to (a) meet the demands of current account holders for repayment of their funds, or (b) protect the interests of its investment account holders.

In performing their fiduciary role, Islamic banks are enforced to preserve the interests of all fund providers, as prescribed by IFSB standard on risk management principle 7.2 (IFSB, 2005a: 2). In doing so, Islamic banks must ensure that the bases for "asset, revenue, expense and profit allocations are established, applied and reported in a manner consistent with Islamic banks' fiduciary responsibilities" (IFSB, 2005a: 27).

Islamic banks' fiduciary duty is all about preserving the trust from all fund providers. Two important aspects that seriously need to be taken into consideration in safeguarding the trust are:

(a) *Shariah* aspect: Islamic banks must ensure that the activities and the products are *Shariah*-

compliance;
(b) *Performance* aspect: Islamic banks are required to have sound financial performance, without which, fund providers might indicate that there is mismanagement or misconduct.

In the *Shariah* aspect, Islamic banks may follow the guidance set by their own or independent *Shariah* supervisory board; while in the *performance* aspect Islamic banks may create policy which includes the following:

- A proper identification of *Shariah* compliant and profitable investment activities which can contribute to a stable investment returns;
- An efficient allocation of assets and profits should be managed professionally and in accordance with an Islamic bank's fiduciary responsibilities;
- A regular information provision of the investment performance is necessary for the investment account holders and the market in order to assess the risk profiles and the financial soundness of the Islamic banks.

The element of trust is very important in the relationship between Islamic banks and the fund providers. This relationship, as Iqbal and Mirakhor (2007) argue, differentiates Islamic banks from conventional ones and is the sole justification for the existence of the Islamic banks. Thus, Islamic banks are always expected to act in the best interests of their fund providers, i.e. investors/depositors and shareholders. In respect with fiduciary role, Islamic banks are exposed to fiduciary risk if they fail to align the objectives of the investors and shareholders with the actions that they are supposed to carry out.

The consequences of fiduciary risk can be enormous, particularly if Islamic banks start to loose their reputation from their customers. Iqbal and Mirakhor (2007) argue that fiduciary risk can give a huge impact on the bank's cost and access to liquidity. If the banks are declared to be insolvent, which is the worst case, the banks are unlikely able to meet the demands of the current and investment account holders. Hence, a sound level of solvability help Islamic banks enhances their credibility in sights of the fund provider. In this respect, Muljawan (2005) suggests three numerical indicators which can possibly used to indicate the level of a bank's solvency; first, *capital adequacy ratio* (CAR) based on IFSB directives; second, *equity coverage ratio* which reflects the capability of the own capital to effectively cover the potential loss emanated from bank's financial exposures; and third, *leverage ratio* that indicates the estimate of the residual claims of the bank.

A few cases of fiduciary risk exposures that could occur in Islamic banks are as follows (Greuning and Iqbal, 2008; Iqbal and Mirakhor, 2007):

- In *Mudarabah* and *Musharakah* contracts on the assets side of the balance sheet for instance; the bank is expected to perform adequate screening and monitoring of projects. Any deliberate or non-deliberate negligence which lead to fiduciary risk should also be monitored. It is, nevertheless, imperative for the management to

perform due diligence before taking actions on the investors/depositors' funds.

- Mismanagement of current account holders' funds can expose the bank to fiduciary risk as well. It might occur when Islamic banks are suffering heavy losses when utilising such funds which could result in the depositors losing confidence in the bank.
- Inflicting expenses or allocation of excessive expenses to investment account holders is a breach of the implicit contract to act in a transparent fashion.

A good reputation is, without doubt, determined by how thorough Islamic banks maintain their fiduciary roles. Although reputational risk is perceived to be part of operational risk (Greuning and Iqbal, 2008; Iqbal and Mirakhor, 2007), this paper argues that reputational risk is, as a matter of fact, a resulting impact of the failure in maintaining fiduciary roles.

3.3 People Risk

People risk is another type of operational risk arising from incompetence or fraud, which exposes Islamic banks to potential losses. This includes human errors, lack of expertise, and fraud (Akkizidis and Kumar, 2008). Another aspect which has to be taken into consideration is that whether the risk of a loss is intentional or unintentional. Unfortunately, as Akkizidis and Kumar (2008) contend, the largest amount of losses comes from intentional activities such as fraud and unauthorised trading. For instance, an internal control problem cost the Dubai Islamic Bank US$50 million in 1998 when a bank official did not conform to the bank's credit terms. This also resulted in a run on its deposits of US$138 million, representing 7% of the bank's total deposits, in just one day (Warde, 2000: 155). Another case involving a large unauthorised loan, around US$242 million, was also caused by bank official of the Dubai Islamic Bank and West African tycoon Foutanga Dit Babani Sissoko (Warde, 2000: 156).

Although there has not been any single research assessing the exposure of people risk in Islamic banks, as mentioned earlier, it is understood that the challenge is considerably high. The thriving development of Islamic banking industry, unfortunately, has not been matched up with the number of people who have credentials in running and directing the business. This issue has been highlighted by Aziz (2006), Edwardes (2002), Jackson-Moore (2007), Khan (2004), Khan and Ahmed (2001), and Kumar (2008), and Nienhaus (2007). The dimension of people risk in Islamic banks is understandably wider than in conventional ones since the personnel of Islamic banks' personnel are required to be well-versed in both, conventional banking products and their status in relation to Islamic requirements (Aziz, 2006; Ebrahim, 2007; Nienhaus, 2007). There is a dire need that Islamic banking industry must be equipped with a new breed of innovators, risk managers, regulators and supervisors who have the right blend of knowledge of finance and the understanding of the *Shariah* (Aziz, 2006).

Furthermore, they should be aware of the existing Islamic alternatives and their commercial advantages and disadvantages compared to the conventional products (Nienhaus, 2007). A shortage in skilled bankers with such requirements aforementioned above, will undoubtedly lead to a higher people risk (Jackson-Moore, 2007). In other word, inadequately trained staff or incapable personnel will expose Islamic banks unnecessarily to operational risk. In response to a very demanding industry, staffs of Islamic banks must be able to design *Shariah* compliant financial innovations in order to meet the diversified needs of the clients and to match the ever increasing scope of conventional techniques, procedures, and products. More importantly, despite the fact of such challenges, staffs of Islamic banks should be able to create financial contracts which are more than just legally interest free. In other words, skilled staffs of Islamic banks will ensure that the products are efficient as well as *Shariah*-compliant. Unskilled staffs can cause the product to be, either illegitimate according to *Shariah* or inefficient.

A fraud case in the Dubai Islamic Bank as mentioned above shows that an institution called Islamic bank is not free from fraud, whether intentional or unintentional. Akkizidis and Kumar (2008) suggest that financial institutions should establish appropriate system and thorough control for the management of operational risks that may arise from employee. Hence, the following direction can be established (Akkizidis and Kumar, 2008: 194–195):

- A selection of employees that respect and follow the *Shariah* principles;
- A separation of the employees' duties;
- An internal supervision of the employees' performances;
- Well established policies that are complying with the *Shariah* principles and are well known by all employees;
- Training process to direct the employees in the process of the risk management;
- A transparent reward and punishment mechanism.

At the current state, it is understood that people risk can contribute to operational risks substantially. One of the reasons is because of the lack of people who are adequately trained in both modern financial transactions and applied *Fiqh Muamalah*. In most cases, Islamic banks hire *Shariah* scholars who hardly understand the complexity of modern financial transactions. On the other hand, it is also very difficult to find financial economists who are knowledgeable in applied *Fiqh Muamalah*.

3.4 Technology Risk

In an advanced financial industry, an Islamic bank's operations are very much dependent on its technological system. Its success depends, in great part, on its ability to assemble increasingly rich databases and make timely decisions in anticipation of client demands and industry changes. The advanced use of information technology (IT) has also brought a new

facet in the current competition of Islamic banking industry. It is often that a success of an Islamic bank's business is determined by the ability to capitalise the use of an information technology in different ways. An inability to keep up with the advanced use of an information technology could cause an Islamic bank fall behind its competitors. Therefore, every Islamic bank must be committed to an ongoing process of upgrading, enhancing, and testing its technology, to effectively meet (Chorafas, 2004: 91); (a) sophisticated client requirements, (b) market and regulatory changes, and (c) evolving internal needs for information and knowledge management.

Chorafas (2004) argues that a failure to respond to the above prerequisites could increase an exposure to operational risk related to IT. In addition, the use of software and telecommunications systems that are not tailored to the need of Islamic banks could also contribute to technology risk, as well as many other internal such as such as human error, internal fraud through software manipulation (Chorafas, 2004: 91), programming errors, IT crash caused by new applications, incompatibility with the existing systems, failures of system to meet the business requirements (Akkizidis and Kumar, 2008: 191), external fraud by intruders; obsolescence in applications and machines, reliability issues, mismanagement, and the effect of natural disasters.

It is clear from the explanation above that the extensive use of an information technology could increase IT related operational risk in number and severity originating from internal as well as external events.

However, high technology allows a visualisation which turns numbers into graphs and images. Unfortunately, only few financial institutions have the ability to capitalise the best that the technology can offer (Chorafas, 2004). Spending big sums of money on technology without the corresponding return on investment (ROI) is also an indication of an IT-related operational risk.

3.5 Legal Risk

The inclusion of legal risk as part of a broader notion of operational risk has been a subject of debate among the academicians and practitioners (Hadjiemmanuil, 2003; Scott, 2001). This might be due to the difficulties in defining its nature (Scott, 2001). The other reason, as Scott (2001) argues, is because legal risk has an unpredictable effect, even though it can be the determinant of losses that banks have to incur. Integrating legal risk as a subset of operational risk is also criticised because of being neither self-evident nor universally accepted (Hadjiemmanuil, 2003).

Confusion on the subject matter also revolves around the various meanings of the term legal risk, which also depends on the specific context and the practical concerns of the persons employing it (Hadjiemmanuil, 2003). Furthermore, Hadjiemmanuil (2003) suggests that there

are different ways in which loss may arise, all of which are often classified under the domain of legal risk. Thus, the loss may be attributable to:

(a) Legally flawed actions of the bank or its employees and agents; as a result of which the bank either incurs direct liabilities or becomes unable to ascertain in law a certain right in order to protect its interests;

(b) Legal uncertainty; this is an external parameter which does not depend on any fault of the bank itself. It affects even the most diligently and prudently run institutions. Sometimes, the law is intentionally expressed in general and abstract terms. Because of informational constraints, it is impossible to draft complete rules which make special provision for each and every eventuality;

(c) Legal uncertainties and financial innovation. Innovation, however, is a significant contributor to legal risk as well. The adoption of new and complex transactional techniques, in particular, often comes with significant legal uncertainty, hence, can expose banks to potentially catastrophic risk;

(d) Country specific legal perils and costs. The term legal risk can also refer to the relative risk of doing business in different countries, as a function of the quality of their legal system. Jurisdictions can be compared by reference to the effects of their laws and judicial systems in terms of increasing or attenuating the risk.

With respect to Islamic banking, the impacts of legal risk on Islamic banks are substantial and cannot be neglected (Cihak and Hesse, 2008; Djojosugito, 2008; Hassan and Dicle, 2005; Iqbal, 2005; Kahf, 2005; Kumar, 2008; Nienhaus, 2005; Sundararajan, 2005). Legal risk may arise from uncertainty in laws (Kumar, 2008), lack of reliable legal system to enforce financial contracts (Djojosugito, 2008; Iqbal, 2005; Sundararajan and Errico, 2002; Sundararajan, 2005), legal uncertainty in the interpretations of contracts (Cihak and Hesse, 2008), the legality of financial instruments (Djojosugito, 2008), lack of availability of legal experts (Kumar 2008), and exposure to unanticipated changes in laws and regulations (Djojosugito, 2008). Moreover, it is argued that some operational aspects of Islamic banking activities are not sufficiently covered by laws, which in turn, results in the exposure of legal risk to Islamic banks (Djojosugito, 2008). It stems from the fact that most of Islamic banks, at the current stage, operate within similar legal and business environments (Hassan and Dicle, 2005; Kahf, 2005). In addition to that, a number of inevitable separate contracts in Islamic banking products could contribute to additional legal risks (PWC, 2009). For example, in the case of *Murabaha* transaction, the bank has to buy an item and then sell it on under different payment terms—each step takes time and involves a fresh contractual agreement which magnifies the scope for disagreements and complications.

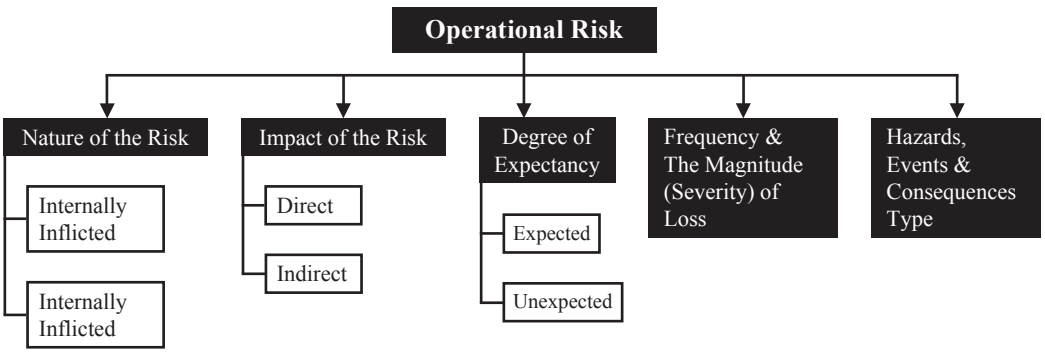
Uncertainty in regulation may also account for legal risk if such regulatory changes affect the legality of certain Islamic financial instruments. This is the case in Indonesia where

the law views some of *Mudarabah* bonds issued as debt which in effect is guaranteed by the patrimony of *Mudarib* (Djojosugito, 2008). While *Shariah* prohibits such recourse, the law will not uphold the *Shariah* prohibition.

IV. Identification of Operational Risks

The wide scope of operational risk has inescapably created difficulties in the analysis of operational risk management. Thus it is not easy to develop a workable classification scheme or taxonomy for this type of risk. The following figure will help us identify the source of operational risk based on five categories; (1) nature of the risk, (2) impact of the risk, (3) degree of expectancy, (4) the frequency & magnitude (severity) of loss, and (5) hazards, events, and consequences type.

Figure 1: Classification of Operational Risk



Source: Marshall (2001), with modifications

4.1 Nature of the Risk

Following the categorisation set out by Basel Committee on Banking Supervision, internally inflicted operational risks are any intended acts to defraud, misappropriate property or circumvent regulations, law, or company policy. This includes intentional misreporting of positions, employee theft, and insider trading on an employee's own account (BCBS, 2002). In addition to that, a failure to comply with *Shariah* principles and inability to maintain the fiduciary responsibilities are the operational risk which originates from within the management of the bank. Other internal risks may result from technology risk due to the programming errors, IT crash caused by new application, or the incompatibility contractual features and the technology installed in the system (Akkizidis and Kumar, 2008). The process of conducting the business, as Zamorski (2003) contends, also matters. For an Islamic bank, an appropriate process in structuring the financial products is certainly crucial. It is worth noting that the

sequence of structuring the product, which includes the delivery or an execution, can determine whether the financial products are in accordance with *Shariah* principles or not.

Furthermore, externally inflicted operational risks may arise from incidents such as external fraud, theft, computer hacking, regulatory regime change, and other factors which are beyond the control of an Islamic bank.

Many of the internal operational risk can be prevented with an appropriate internal management practices; for example, tightened controls and management of the personnel that can help prevent some employee errors and internal fraud, and also an improved telecommunication network which can help prevent some technological failures. However, external operational risks are rather difficult to prevent. Marshall (2001), Young and Ashby (2001), van den Brink (2002) and Hoffman (2002) contend that it is still possible to design insurance or other hedging strategies to reduce or possibly eliminate externally inflicted losses.

4.2 Impact of the Risk

Direct risk is any risk leading to losses directly arises from the associated events. For example, in incompetent currency trader can result in a loss for the bank due to adverse exchange rate movements. Another example might be by mistakenly charging in the amount of £10,000 instead of £15,000 resulting in the loss for the bank in the amount of £5,000. The Basel II sets guidelines regarding the estimation of the regulatory capital charge by the banks based only on direct losses. Table 1 identifies the Basel II categories and definitions of direct operational losses.

Table 1: Direct Loss Type in Operational Risk

Loss Type	Contents
Write-downs	Direct reduction in the value of assets due to theft, fraud, unauthorized activity, or market and credit losses arising as a result of operational events.
Loss of recourse	Payments or disbursements made to incorrect parties and not covered.
Restitution	Payments to clients of principal and/or interest by way of restitution, or the cost of any other form of compensation paid to clients.
Legal liability	Judgements, settlements, and other legal cots.
Regulatory and Compliance	Taxation penalties, fines, or the direct cost of any other penalties, such as license revocations.
Loss of or damage to assets	Direct reductions in the value of physical assets, including certificates, due to an accident, such as neglect, accident, fire, and earthquake.

Source: BCBS (2001)

Indirect risk is generally opportunity costs and the losses associated with the costs of fixing an operational risk problem such as near-miss losses.

Near-miss losses have been mentioned in the regulatory proposals (BCBS: 2001), and there are hints that they might be used to augment internal loss data in the calibration of the capital calculation models. Near-miss losses are actually the estimated losses from those events that

could potentially occur but were successfully prevented.

4.3 Expected vs Unexpected Operational Loss

Some losses due to operational risks are expected; while some others are not. The expected losses (*EL*) are generally those that occur on regular basis, such as minor employee errors and minor credit card fraud. In other word, expected loss is anticipated for the next time period. For infrequent events, i.e. those which are extremely unlikely to occur more than once in a given time period, expected losses are:

$$EL = \sum_{event_i} Loss_i \times LikelihoodofLoss_i$$

For more frequent events, expected losses *E(L)* depend on the form of the probability distribution *p(L)* for the event frequencies and impacts; and in the continuous limit can be written as:

$$E(L) = \int_{-\infty}^{\infty} Lp(L)dL$$

Unexpected losses (*UL*) are those losses that generally cannot be easily foreseen, such as natural disasters and large scale internal fraud. For infrequent events, the following formula can be used to estimate the unexpected loss over a number of possible outcomes (*i*):

$$UL = \sqrt{\sum_{event_i} LikelihoodofLoss_i \times (Loss_i - EL)^2}$$

Or its continuous equivalent:

$$UL = \sqrt{\int_{-\infty}^{\infty} [L - E(L)^2 \, p(L)dL}$$

As for expected losses, it is assumed that the number of occurrences (*N*) of the event in a time period, and the individual events impacts (*I*) are independent. BCBS (2001) suggests that the capital charge for operational risk should cover unexpected losses (*UL*) due to operational risk, and that provisions should cover expected losses (*EL*). This is due to the fact that many banking activities with a highly likely incidence of expected regular operational risk losses (such as fraud losses in credit card) are deducted from reported income in the particular year. Therefore, in 2001 BCBS proposes the calibration of capital charge for operational risk based on both *EL* and *UL*; a certain amount of which is to be deducted due to provisioning and loss deduction (rather than *EL*) from the minimum capital requirement.

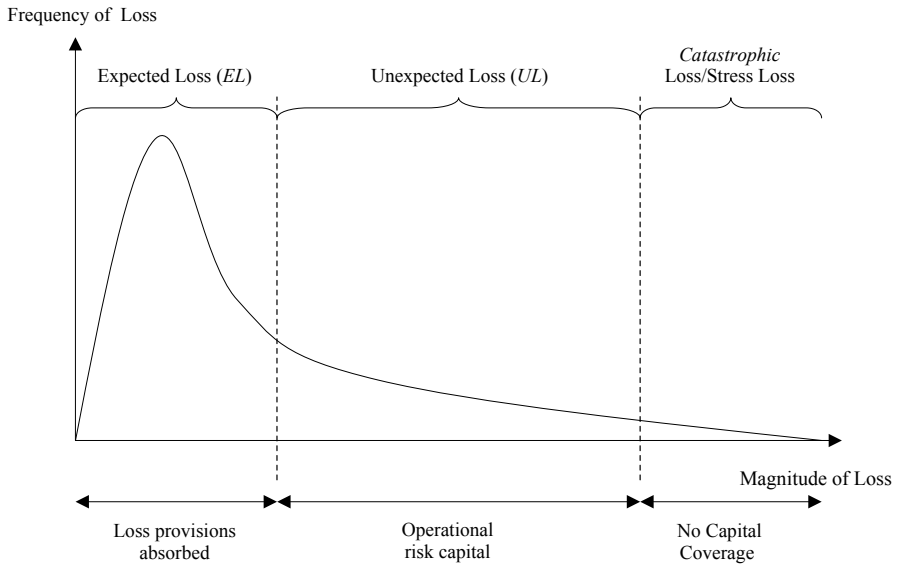
However, accounting rules in many countries do not provide a robust and clear approach to setting provisions, from example allowing provisions set only for future obligations related to events that have already occurred. In this sense, they may not accurately reflect the true scope of *EL*. Therefore, in the 2004 version of Accord, it was proposed to estimate the capital

charge as sum of *EL* and *UL* first and then subtract the *EL* portion in those cases when the bank is able to demonstrate its ability to capture the *EL* by its internal business practices. BCBS (2006a) further clarify the idea:

> *"For operational risk EL to be measured to the satisfaction of national supervisors, the bank's measure of EL must be consistent with the EL plus UL capital charge calculated using the AMA model approved by supervisors. ...Allowable offsets for operational risk EL must be clear capital substitutes or otherwise available to cover EL with a high degree of certainty over a one year time horizon. Where the offset is something other than provisions, its availability should be limited to those business lines and event types with highly predictable, routine losses. Because exceptional operational risk losses do not fall within EL, specific reserves for any such events that have already occurred will not qualify as allowable EL offsets".*

Figure 2 portrays the dimensions of operational risk, showing the *catastrophic loss/ stress loss* which is the loss in the excess of the upper boundary of the estimated UL such as 99.9% *value at risk*.[2] It requires no capital coverage; however Mori and Harada (2001), van den Brink (2002), and Chorafas (2004) suggest that insurance coverage may be considered.

Figure 2: Coverage of Operational Risk



4.4 Frequency and Magnitude of Loss

Expected losses generally refer to the losses of low severity (or magnitude) and high frequency. Generalising this idea, operational losses can be broadly classified into four main

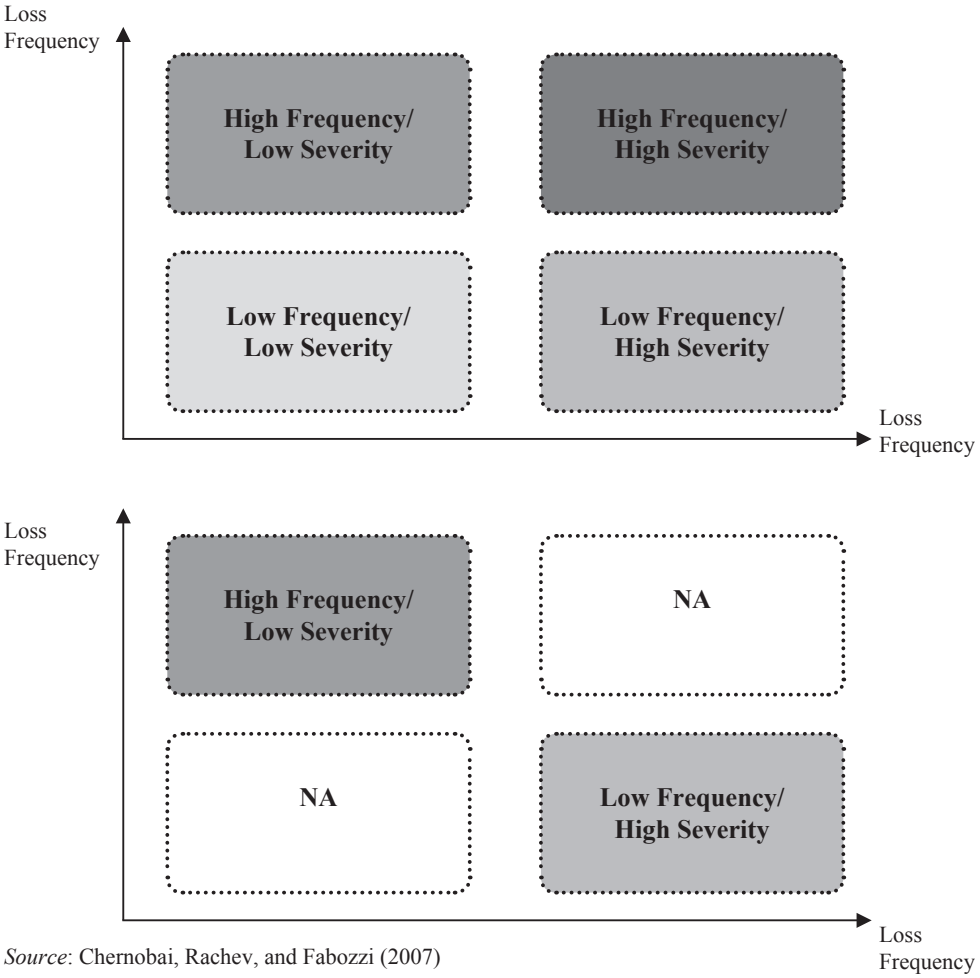
2 Value at risk is the worst loss that may occur with a given confidence level and for a given period.

groups:

1. Low frequency/low severity
2. High frequency/low severity
3. High frequency/high severity
4. Low frequency/high severity

The "severity-frequency quadrant" shown in Figure 3 gives an idea on the assessment of the likelihood (frequency) of operational risk and the magnitude (severity) of loss. It also provides information on operational risk exposures across the bank.

Figure 3: Classification of Operational Risk by Frequency and Severity



Source: Chernobai, Rachev, and Fabozzi (2007)

As clearly seen in top half of Figure 3 that if a business unit falls in the upper right hand quadrant (high frequency/high severity), the business has a high likelihood of operational risk and a high severity of loss, if a failure occurs. However, Samad-Khan (2006) and Scandizzo (2005)

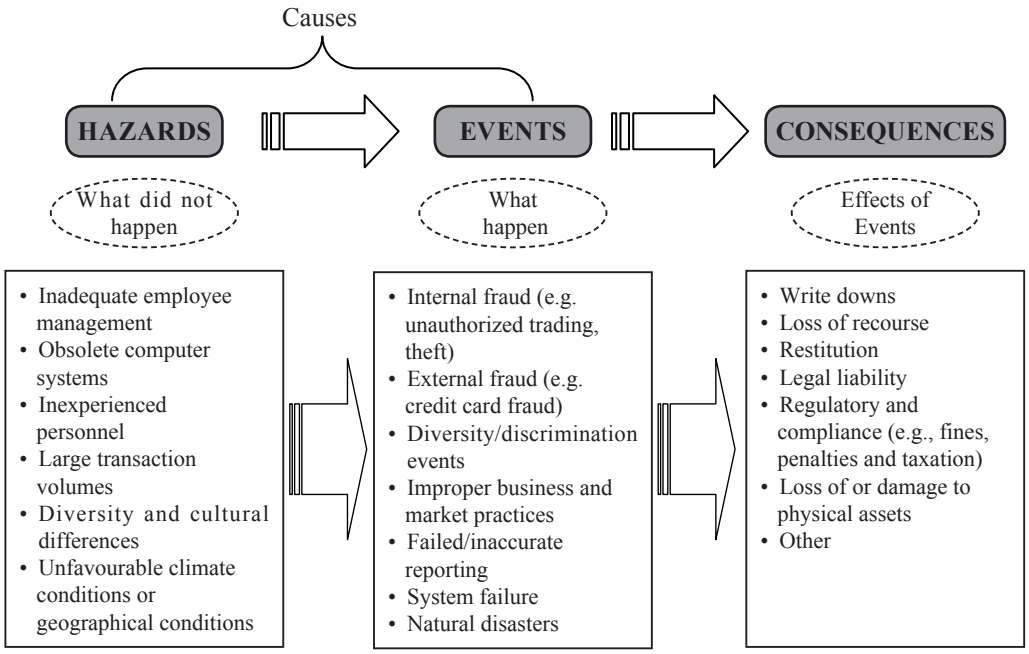
argue that this is unlikely to happen; therefore it is not very useful for operational risk modelling. In addition, Chernobai, Rachev and Fabozzi (2007) contend that the first group (low frequency/low severity) is not feasible as well. Consequently, the two remaining categories of operational losses that the financial industry needs to focus on are "high frequency/low severity" and "low severity/high frequency" losses. The two areas are described in the bottom half of figure 3.

The losses of high frequency/low severity are relatively unimportant for an institution and often can be prevented. What cause the greatest damage are the low frequency/high severity losses. Banks must be particularly attentive to these losses, because these cause the greatest financial consequences to the institution, including potential bankruptcy.[3] Just a few of such events may result in bankruptcy or a significant decline in the value of the bank.

4.5 Hazard, Events, and Consequences Type

What makes an operational risk analysis so challenging is that because the breadth of operational failures comprise of hazards, events, and consequences. A modern operational risk management analysis, as Samad Khan (2008) argues, is based on this multidimensional framework, focusing on the event dimension as the starting point of analysis.

Figure 4: Taxonomy of Operational Risks



Source: Samad-Khan (2008), with modifications.

3 The events that incur such losses are often called the *tail events*.

Confusion usually arises in the operational risk because of the distinction between risk type (or *hazard* type), event type, and *consequence* (or *loss* type). When banks record their operational loss data, it is very essential to record it separately according to event type and loss type, and precisely identify the risk type as well. Mori and Harada (2001), Alvarez (2002), and Dowd (2003) suggest that the distinction between the three is comparable to cause and the effect. *Hazard* constitutes one or more factors that increase the probability of occurrence of an event; *event* is a single incident that leads directly to one or more effects (e.g. losses); and *loss* constitutes the amount of financial damage resulting from an event.

Mori and Harada (2001) shows how operational losses would occur in a process called 'cause-effect' relationship between *hazard*, *event*, and *loss*. *Loss* is effect of *event* while *event* is cause of *loss*. Yet, *event* is effect of *hazard* while *hazard* is cause of *event*. In other words, every *loss* must be associated with an *event* that caused the *loss*, while every event must be associated with one or multiple *hazards* that caused the *event*. Upon further analysis, it appears that "causes" consists of both hazards and events since hazards and events together cause losses (Samad-Khan, 2006: 25). Hazards are anything that should have been done, but were not done. In other word, nothing has necessarily materialised, while events represent something that happened (e.g., loss).

Operational risk hazards, events, and losses are usually associated with internal control weaknesses or lack of compliance with existing internal procedures as well as with the *shariah* principles (examples of hazards, events and consequences are shown in table 2). Such a lack of compliance can be found in all areas of an institution and is mainly caused by the combined actions of people, technological systems, processes, and some unpredictable events. It is proposed that an Islamic bank focuses on root causes as opposed to effects. When a risk event is formulated, the causes or originating sources could be identified, and hence, what consequences that would take place could also be identified. The resulting consequences if the risk is to be 'accepted', 'avoided', or 'mitigated' must also be understood.

An analysis of operational risk management should not be thought of as disjointed tasks; instead, it should be viewed as a structured process in which relevant risks and control information are integrated as depicted in figure 4. Such a structured approach will help a management of an Islamic bank develop a classification based on a root cause analysis which can eventually be capture in the loss event database. Thus, by linking causation to relevant business activities, through correlation analysis for instance, the structure could then be used as a foundation for an effective operational risk management.

Table 2

Examples of Causes, Events, and Losses

Cause types	Event types	Consequence types
Deception of Individual's behaviour	Internal Fraud External Fraud	Regulatory and Compliance
Organisational and Corporate Behaviour	Employment practices and workplace safety	Legal liability
Faults due to Information Technology	Business disruption, system failures	Loss/damage to assets
External Political and Financial Uncertainties	Damage to physical assets	Third party losses and damages to assets (in *ijara* contract)
Inefficient Agreements with the counter-parties / partners due to inefficient operational evaluation of processes	Client, products, and business practices Execution, delivery, and process management	Loss of reputation Restitution Loss of resources
Non financial external uncertainties	Default of keeping the promise to buy the commodity (in *Murabaha* contract)	Loss of opportunities Loss of market share
Mismatching specification in commodities, assets	Defaults of the commodity's delivery (*Salam* and *Istisna'* contracts)	Exposure to market and credit risks
Uncertainties in manufacturing and construction process	Failures on deliveries by the partnership obligations (in *Musharaka* and *Mudaraba* contracts)	Losses from covering business failures (*Musharaka* and *Mudaraba* business agreement)
External partnership business risk		
Unclear definitions in business activities for the partnership agreements that may be against the *Shariah* principles.	Default in following the principles of *Shariah*	Non-compliance with *Shariah* principles

Source: Akkizidis and Kumar (2008: 188)

V. Operational Risks in Islamic Financial Contracts

After identifying various aspects of operational risks in relation to Islamic banking, this section discusses different dimensions of operational risk in different types of Islamic financial contracts. As can be seen in table 3, the five dimensions of operational risk are Shariah compliance risk (*SR*), fiduciary risk (*FR*), people risk (*PR*), legal risk (*LR*), and technology risk (*TR*). The first three dimensions are, by nature, internally inflicted; while the fourth one is naturally from external source. As for technology risk (*TR*); it can originate from either internal or external operational failures.

Table 3.

The Dimensions of Operational Risk in Islamic Financial Contracts

Contracts	Internal Risks				External Risks	
	***Shariah* Compliance Risk (*SR*)**	**Fiduciary Risk (*FR*)**	**People Risk (*PR*)**	**Technology Risk (*TR*)**	**Legal Risk (*LR*)**	**Technology Risk (*TR*)**
Murabaha	• Exchange of money and commodity needs to be ensured • In the event of late payment, penalty must be avoided as it will tantamount to *riba*.	Inability to meet the specified product stipulated in the contract	Fail to deliver the product	Incompatibility of the new accounting software	Products to be sold must be legally owned by the bank	System failures and external security breaches
Salam	• Final payment of monetary rewards must be concluded in advance • Penalty clause is illegitimate in the event of seller's default in delivering the goods • In parallel *Salam*, execution of second *Salam* contract is not contingent on the settlement of the first *Salam* contract	• Inability to meet the specified product stipulated in the contract. • Delivery of inferior goods can not be accepted	Mismatch in the commodity's specification due to inability of seller to provide the exact product mentioned in the contract.	Incompatibility of the new accounting software	Goods must be delivered when it is due, as agreed in the contract	Specification mismatching in commodities productions agreed in the contract
Istisna'	• Should not be used as a legal device; e.g. the party ordering the product to be produced is the manufacturer himself • In parallel *Istisna'*, contracts should be separated to avoid two sales in one deal	Need to ensure the quality standards of the products	Inability to deliver the product on time	Incompatibility of the new accounting software	Disagreement with the sub-contractor or the customer in the event of remedying the defects	Specification mismatching in commodities productions agreed in the contract
Ijara	• Need to ensure that leased asset is used in a *Shariah* compliant manner • In *Ijarah Muntahia Bittamleek*, an option to purchase can not be enforced.	Major maintenance of the leased asset is the responsibility of the banks or any party acting as lessor.	Lessor needs to understand that in the event of payment delay, rental due can not be increased as clearly exemplified by AAOIFI	Incompatibility of the new accounting software	Enforcement of contractual right to repossess the asset in case of default or misconduct by the lessee	Losses of information on the leased assets specified in the contract due to external security breaches
Musharakah	Profit allocation is based on actual profit, not expected profit	Inadequate monitoring of the financial performance of the venture	Lack of technical expertise in assessing the project	Incompatibility of the new accounting software	A mixture of shares in one entity may lead to legal risk if the regulation does not facilitate such action	Losses of information on the projects specified in the contract due to external security breaches
Mudarabah	Profit allocation is based on actual profit, not expected profit	Inadequate monitoring of the business	Inability to provide regular and transparent financial performance of the project	Incompatibility of the new accounting software	Misinterpretation of civil law upon implementation of *Shariah* compliant *Mudarabah*	Losses of information on the projects specified in the contract due to external security breaches

Source: Author's own

5.1 *Murabahah*

Murabahah is "selling a commodity as per the purchasing price with a defined and agreed profit mark-up" (AAOIFI, 2005). This mark-up may be a percentage of the selling price or a lump sum. Moreover, according to AAOIFI standard (2005), this transaction may be concluded either without a prior promise to buy, in which case it is called ordinary *Murabahah*, or with a prior promise to buy submitted by a person interested in acquiring goods through the institution, in which it is called a "banking *Murabahah*", i.e. *Murabahah* to the purchase orderer. This transaction is one of the trust-based contracts that depends on transparency as to the actual purchasing price or cost price in addition to common expenses.

Murabahah is the most popular contract in terms of its use, since most of Islamic commercial banks operating worldwide rely on this contract in generating income. Different dimensions of operational risk which can arise in murabahah transaction are as follows:

- *Shariah compliance risk* (*SR*); may arise if the Islamic banks give money, instead of commodity, which will then result in the exchange of money and money. This is prohibited in *Shariah*, since the exchange of money with money, plus additional amount above the principal and paid in different time will tantamount to *Riba*. AAOIFI *Shariah* standard (2005) also requires Islamic banks to own, legally, the commodity before they sell it to the customers. It is important to note that the sequence of the contract is very central in *Murabahah* transaction. Inability or failure to conform with the sequence and *Shariah* requirement will result in the transaction to be deemed illegitimate.
- *Fiduciary risk* (*FR*); this risk arises due to the inability to meet the specified commodity stipulated in the contract.
- *People risk* (*PR*); the risk can result from two sides, seller as well as buyer. *PR* from the seller side occurs if Islamic banks fail to deliver the specified product agreed in the contract on due date, while *PR* from the buyer side takes place when the buyers does not keep their promise to buy the commodity. This can happen in the binding *Murabahah* contract.
- *Legal risk* (*LR*); profit originated from *Murabahah* can not be equated with interest, although it looks similar. The main difference is because the resulting profit is tied with the underlying commodity. This might create legal problem as in certain countries, the regulators only give limitation on interest rate, not profit rate. Hence, the absence of so called 'profit rate cap' has the potential to crate legal problems if there is any dispute. Another potential problem can occur at the contract signing stage, since the contract requires the Islamic bank to purchase the asset first before selling it to the customer; the bank needs to ensure that the legal implications of the contract properly match the commercial intent of the transactions.

- *Technology risk* (*TR*); may result from an incompatibility of the new accounting software or an external system failure.

5.2 *Salam* and Parallel *Salam*

AAOIFI *Shariah* standards (2005) define *Salam* as a transaction of the purchase of a commodity for the deferred delivery in exchange for immediate payment. It is a type of sale in which the price, known as the *Salam* capital, is paid at the time of contracting while the delivery of the item to be sold, know as *al-Muslam Fihi* (the subject matter of a *Salam* contract), is deferred. The seller and the buyer are known as *al-Muslam Ilaihi* and *al-Muslam* or *Rabb al-Salam* respectively. *Salam* is also known as *Salaf*. Parallel *Salam* occurs when the seller enters into another separate *Salam* contract with a third party to acquire goods, the specification of which corresponds to that of the commodity specified in the first *Salam* contract (AAOIFI, 2005).

- *Shariah compliance risk* (*SR*); one of the very central conditions in *Salam* contract is that the payment of *Salam* capital must be paid full in advance. If payment is delayed, the transaction is not called *Salam* (AAOIFI, 2005: 172). Any delay in payment of the capital and dispersal of the parties renders the transaction a sale of debt for debt, which is prohibited, and the scholars agreed on its prohibition (AAOIFI, 2005: 172). Another aspect, which might lead to *SR* may also occur in parallel *Salam*; this will take place if the execution of the second *Salam* contract is contingent on the execution of the first *Salam* contract. Penalty clause is also not allowed, in the event of a seller's default in delivering the good. The basis for not allowing penalty in *Salam* is because *al-Muslam Fihi* (the subject matter of a *Salam* contract) is considered to be a debt; hence it is not permitted to stipulate payment in excess of the principal amounts of debt (AAOIFI, 2005: 173).
- *Fiduciary risk* (*FR*); *Salam* is generally associated with the agricultural sector. The buyer must either rejects goods of an inferior quality to that specified in the contract, or accept them at the original price. In the latter case, the goods would have to be sold at a discount (unless the customer under a parallel *Salam* agreed to accept the goods at the originally agreed price).
- *People risk* (*PR*); can arise due to a seller's default in delivering the commodity or due to the commodity's specification mismatching. Financial institutions may minimise such type of operational risks by asking from the seller guarantees that they are following a quality management system or following any standard system, or by asking for references on past promises on *Salam* contract or by collateralising their losses via insurance policies.
- *Legal risk* (*LR*); Islamic banks may face legal risk if the goods can not be delivered

at the specified time (unless the customer under parallel *Salam* agrees to modify the delivery date).

- *Technology risk* (*TR*); may result from an incompatibility of the new accounting software or the system fails to specify precisely the commodities agreed in the contract.

5.3 *Istisna'* and Parallel *Istisna'*

Istisna' is another type of forward contract, but the role of an Islamic bank as a financial intermediary differs from that in a *Salam* contract. In this case, the bank contracts to supply a constructed asset (such as a building or a ship) for a customer. In turn, the bank enters into a parallel *Istisna'* with a sub-contractor in order to have the asset constructed. Its reliance on the parallel *Istisna'* counterparty (the sub-contractor) exposes it to various operational risks, which need to be managed by a combination of legal precautions, due diligence in choosing sub-contractors, and technical management by appropriately qualified staff or consultants of the execution of the contract by the sub-contractor. Islamic banks that specialise in *Istisna'* financing may have an engineering department. Risks may include the following:

- *Shariah compliance risk* (*SR*); could arise if *Istisna'* is being used as a legal device for mere interest based financing. For instance, an institution buys items from the contractor on a cash payment basis and sells them back to the manufacturer on a deferred payment basis at a higher price; or where the party ordering the subject matter to be produced is the manufacturer himself; or where one third or more of the facility in which the subject matter will be produced belongs to the customer. All the circumstances mentioned above would make the deal an interest based financing deal in which the subject matter never genuinely changes hands, even if the deal won through competitive bidding. This rule is intended to avoid sale and buy back transactions (*Bay al-Inah*). In parallel *Istisna'*, the separation of contracts is a must, hence this is not an instance of two sales in one deal, ehich is prohibited.
- *Fiduciary risk* (*FR*); the sub-contractor may fail to meet quality standards or other requirements of the specification, as agreed with the costumer under the *Istisna'* contract.
- *People Risk* (*PR*); this may arise if the Islamic bank may be unable to deliver the asset on time, owing to time overruns by the sub-contractor under the parallel *Istisna'*, and may thus face penalties for late completion.
- *Legal risk* (*LR*); Islamic banks may face legal risk if no agreement is reached with the sub-contractor and the customer either for remedying the defects or for reducing the contract price.
- *Technology risk* (*TR*); may result from an incompatibility of the new accounting

software or the system fails to specify precisely the commodities that would be produced in the contract.

5.4. *Ijarah* and *Ijarah Muntahia Bittamleek*

In simple terms, an *Ijarah* contract is an operating lease, whereas *Ijarah Muntahia Bittamleek* is a lease to purchase. While operational risk exposures during the purchase and holding of the assets may be similar to those in case of *Murabahah*, other operational risk aspects include the following:

- *Shariah compliance risk* (*SR*); the Islamic banks need to ensure that the asset will be used in a *Shariah* compliant manner. Otherwise, it is exposed to non-recognition of the lease income as non-permissible.
- *Fiduciary risk* (*FR*); major maintenance is the responsibility of an Islamic bank as a lessor, as directed by AAOIFI *Shariah* standards (2005: 154). In addition to that, it is the duty of the lessor to ensure that the usufruct is intact, and this is not possible unless the asset is maintained and kept safe so that the lessor may be entitled to the rentals in consideration for the usufruct. Thus, deficiencies in maintaining such responsibility can be deemed to be sources of *FR* in *Ijarah* contract.
- *People risk* (*PR*); lessor is not allowed to increase the rental due, in case of delay of payment by the lesse, this is what AAOIFI (2005) clearly exemplifies. Misunderstanding of this principle by the staff is a source of losses caused by *PR*, because the income generated from this, is not permissible from *Shariah* point of view.
- *Legal risk* (*LR*); the Islamic bank may be exposed to legal risk in respect of the enforcement of its contractual right to repossess the asset in case of default or misconduct by the lessee. This may be the case particularly when the asset is a house or apartment that is the lessee's home, and the lessee enjoys protection as a tenant.
- *Technology risk* (*TR*); may occur due to an incompatibility of the new accounting software or losses of information on the leased assets due to external security breaches.

5.5 *Musharakah*

Musharakah is a profit and loss sharing partnership contract. The Islamic bank may enter into a *Musharakah* with a customer for the purpose of providing a *Shariah* compliant financing facility to the customer on a profit and loss sharing basis. The customer will normally be the managing partner in the venture, but the bank may participate in the management and thus be able to monitor the use of the funds more closely. Typically, a diminishing *Musharakah* will be used for this purpose, and the customer will progressively purchase the bank's share

of the venture. Operational risks that may be associated with *Musharakah* investments are as follows:

- *Shariah compliance risk* (*SR*); the source of *SR* may arise due to the final allocation of profit taking place based on expected profit. AAOIFI (2005: 205) commands that it is necessary that the allocation of profit is done on the basis of actual profit earned through actual or constructive valuation of the sold assets.
- *Fiduciary risk* (*FR*); any misconduct or negligence of the partners are the sources of *FR*. This can happen in the absence of adequate monitoring of the financial performance of the venture.
- *People risk* (*PR*); lack of appropriate technical expertise can be a cause of failure in a new business activity.
- *Legal risk* (*LR*); an Islamic bank which enters into *Musharakah* contract needs to acquire some shares from separate legal entity that undertake *Shariah* compliant activities. A mixture of shares in one entity may lead to legal risk if the regulation does not allow doing such action.
- *Technology risk* (*TR*); may occur due to an incompatibility of the new accounting software or losses of the precise information on projects undertaken due to external security breaches.

5.6 *Mudarabah*

Mudarabah is a profit sharing and loss bearing contract under which the financier (*Rab al Mal*) entrusts his funds to an entrepreneur (*Mudarib*). The exposure of operational risk in *Mudarabah* is somewhat similar to that of *Musharakah*. However, since this type of contract may be used on the assets side of the balance sheet, as well as being used on the funding side for mobilising investment accounts, the operational risk is first analysed from the assets-side perspective and then from the funding side perspective (which is related to fiduciary risk)

5.6.1 Asset-side Mudarabah

Contractually, an Islamic bank has no control over the management of the business financed through this mode, the entrepreneur having complete freedom to run the enterprise according to his best judge judgement. The bank is contractually entitled only to share with the entrepreneur the profits generated by the venture according to the contractually agreed profit sharing ratio. The entrepreneur as *Mudarib* does not share in any losses which are borne entirely by the *Rab al Mal*. The *Mudarib* has an obligation to act in a fiduciary capacity as the manager of the bank's funds, but the situation gives rise to moral hazard especially if there is information asymmetry—that is, the bank does not receive regular and reliable financial reports on the performance of the *Mudarib*. Hence, in addition to due diligence before

advancing the funds, the bank needs to take precautions against problems of information asymmetry during the period of investment.

5.6.2 Funding-side Mudarabah

Profit-sharing (and loss bearing) investment accounts are a *Shariah* compliant alternative to conventional interest-bearing deposit account. Since a *Mudarabah* contract is employed between the Islamic bank and its investment account holders, the investment account holders (*IAHs*) share the profits and bear all losses without having any control or rights of governance over the Islamic bank. In return, the Islamic bank has fiduciary responsibilities in managing the *IAHs'* funds. The *IAHs* typically expect returns on their funds that are comparable to the returns paid by competitors (both other Islamic banks and conventional institutions), but they also expect the Islamic bank to comply with *Shariah* rules and principles at all times. If the Islamic bank is seen to be deficient in its *Shariah* compliance, it is exposed to the risk of *IAHs* withdrawing their funds and, in serious cases, of being accused of misconduct and negligence. In the latter case, the funds of the *IAHs* may be considered to be a liability of the Islamic bank, thus jeopardising its solvency.

VI. Capital Requirement for Operational Risks

Prior to discussing the measurement of capital requirement for operational risks in Islamic banks, it is important to understand why banks should have adequate capital. For this reason, the first part of this section attempts to elucidate the rational behind capital adequacy requirement. This also explains, briefly, the relationship between bank capitalisation and risk taking behaviour. Following to the discussion in the first part, the subsequent parts, second and third, discuss the measurement of capital attribution for operational risks and operational risk capital charge in Islamic banks respectively.

6.1 Why Do Banks Need to Hold Capital?

Traditionally, capital adequacy requirements have been imposed to ensure solvency. Following Maisel (1979, 1981) and Merton (1979), a bank can be declared 'insolvent' or 'bankrupt' when the market value of the bank liabilities to depositors, computed by assuming that the bank's obligations to depositors would be fully met, exceeds the market value of the bank assets reduced by the costs of liquidation. In other words, negative net worth (based on market values) implies insolvency. For this reason banks generally attempt to boost their risk-based capital ratios by means of; (a) increasing the measures of regulatory capital appearing in the numerators of leverage ratio, or (b) decreasing the regulatory measures of total risk appearing in the denominators (e.g., total risk-weighted assets). Jones (2000)

suggests that in the short run, most banks have tended to react to capital pressures in the ways broadly envisioned by the framers of the Accord. That is, by increasing their capacity to absorb unexpected losses through increased earnings retentions or new capital issues, and by lowering their assumed risks through reductions in loans and other footings.

The relationship between banks' capitalisations and risk taking behaviours is one of the central issues in the banking literature because of the potential implications for regulatory policies. The minimum capital requirement which currently constitutes the core regulatory instrument for the banking industry is based on the premise that increased capital enhances bank safety (Jeitschko and Jeung, 2007). As also discussed in Jeitschko and Jeung (2005), however, this premise may not hold under some relevant circumstances. Indeed, if increased capital induces a bank to increase asset risk (*asset substitution effect of capital*), and this effect supersede the buffer effect of capital (larger capital absorbs more risk), then it is possible that a more highly capitalised bank has a higher probability of failure. This risk taking behaviour of banks related to capitalisation explains why banks often experience rapid, large declines in their capital to asset ratio (*CAR*), and are classified by regulators from well capitalised to troubled banks in as little as a single reporting period. The implication of this positive relationship between risk taking and capitalisation is that capital regulation alone may not be adequate to guarantee the soundness of the banking business.

6.2 Measurement of Operational Risk based Capital

Basel II implemented an additional add-on to capital for operational risk. Prior to this proposal, the Basel Committee on Banking Supervision (BCBS) had argued that operational risk exposures of banks were adequately taken care of by the 8 percent credit risk-adjusted ratio. But increased visibility of operational risks in recent years has induced regulators to propose a separate capital requirement for credit and operational risks. BCBS now believes that operational risks are sufficiently important for banks to devote resources to quantify such risks and to incorporate them separately into their assessment of their capital adequacy. In the 2001 and 2003 Consultative Documents the Basel Committee outlined three specific methods by which banks can calculate capital to protect against operational risk: the Basic Indicator Approach (*BIA*), the Standardised Approach (*SA*), and the Advanced Measurement Approach (*AMA*).

The Basic Indicator Approach is structured so that banks, on average, will hold 12 percent of their total regulatory capital for operational risk. This 12 percent target was based on a widespread survey conducted internationally of current practices by large banks.[4] To

4 Research has found that the amount of capital held for operational risk according to these models will often exceed capital held for market risk and that the largest banks could choose to allocate several billion dollars in capital to operational risk. See (De Fontnouvelle *et al.*, 2006).

achieve this target, the Basic Indicator Approach focuses on the gross income of the bank, that is, its net profits. This equals a bank's net interest income plus net non-interest income:

$$GrossIncome = netInterestIncome + netNonInterestIncome$$

According to BCBS calculations, a bank that holds a fraction (α) of its gross income for operational risk capital, where alpha (α) is set at 15 percent, will generate enough capital for operational risk such that this amount will be 12 percent of its regulatory capital holdings against all risks (i.e., credit, market, and operational risks). For example, under the Basic Indicator Approach:

$$\begin{aligned} OperationalCapital &= \alpha \times GrossIncome \\ &= .15 \times GrossIncome \end{aligned}$$

The problem with the Basic Indicator Approach is that it is too aggregative, or 'top-down', and does not differentiate at all among different areas in which operational risks may differ (e.g., Payment and Settlement may have a very different operational risk profile from Retail Brokerage). A second issue is that α implies operational risk that is proportional to gross income. This ignores, according to Saunders and Cornett (2008), possible economies of scale effects that would make this relationship nonlinear (non-proportional); that is, α might fall as bank profits and/or size grows.

In an attempt to provide a finer differentiation of operational risks in a bank across different activity lines while still retaining a basically *top-down* approach, the BCBS offers a second method for operational capital calculation. The second method, the Standardised Approach, divides activities into eight major business units and lines. Within each business line, there is a specified broad indicator (defined as beta, β) that reflects the scale or volume of a bank's activities in that area. The indicator relates to the gross income reported for a particular line of business. It serves as a rough proxy for the amount of operational risk within each of these lines. A capital charge is calculated by multiplying the β for each line by the indicator assigned to the line and then summing these components. The β reflects the importance of each activity in the average bank. The β is set by regulators and is calculated from average industry figures from a selected sample of banks.

Suppose gross income from the Corporate Finance line of business (the activity indicator) is £30 million and the industry β for Corporate Finance is 18 percent. Then, the regulatory capital charge for this line for this year is:

$$\begin{aligned} \text{Capital}_{Corporate\ Finance} &= \beta \times \text{Gross Income from the Corporate Finance line business for the bank} \\ &= 18\% \times £30 \text{ million} \\ &= £5{,}400{,}000 \end{aligned}$$

The total capital charge is calculated as the three-year average of the simple summation of the regulatory capital charge across each of the eight business lines.[5]

The third method, the Advanced Measurement Approach, allows individual banks to rely on internal data for regulatory capital purposes subject to supervisory approval. Under the Advanced Measurement Approach, supervisors require the bank to calculate its regulatory capital requirement as the sum of the expected loss (*EL*) and unexpected loss (*UL*) for each event type. Internally generated operational risk measures used for regulatory capital purposes must be based on a minimum three year observation period of internal loss data, whether the internal loss data are used directly to build the loss measure or to validate it. A bank's internal loss data must be comprehensive in that the data capture all material activities and exposures from all appropriate subsystems and geographic locations. Risk measures for different operational risk estimates are added for purposes of calculating the regulatory minimum capital requirement.

6.3 Operational Risk Capital Charge in Islamic Banks

The proposed measurement of capital to cater for operational risk in Islamic banks is also adopting the methods set by BCBS. As IFSB (2005b: 17) mentions in its standards that the calculation of operational risk based capital in Islamic banks "may be based on either the Basic Indicator Approach or the Standardised Approach as set out in Basel II". However, there is dissimilarity as regards with the use of the Standardised Approach (*SA*), since IFSB (2005b) views that Islamic banks have different structure of business lines. Hence, at the present stage, the Basic Indicator Approach (*BIA*) can be adopted by Islamic banks. *BIA* requires the setting aside of a fixed percentage of average annual gross income over the previous three years.

Problems of measurement is likely to arise due to lack of data, hence the extent of losses arising from non-compliance with *Shariah* rules can not be ascertained. Therefore, IFSB (2005b: 18) does not require Islamic banks to set aside any additional amount over and above the 15% of average annual gross income over the preceding three years for operational risk. Furthermore, in determining risk weights for operational risk, IFSB (2005b: 18) recommends the exclusion of the share of profit sharing investment account holders from gross income, which is necessary to adjust this, since Islamic banks share profits with their depositor-investors (Greuning and Iqbal, 2008).

5 The Basel's Committee's Loss Data Collection Exercise for Operational Risk (March 2003), based on data provided by 89 banks from 19 countries, revealed that about 61 percent of operational loss events occurred in the retail area, with an average loss of $79,300. Also, only 0.9 percent of operational loss events occurred in the corporate finance area, but with an average loss of $646,600.

VII. Conclusion

Operational risk is a recent addition to the list of risks faced by financial institutions. The management of operational risk in Islamic banks is similar to that in conventional banks but includes several additional elements. In addition, due to the unique features of their financial contracts, operational risk in Islamic banks can be substantially different from what is exposed to the conventional ones. The relative complexity of contracts, combined with the fiduciary obligations of Islamic banks, imply that for Islamic banks, operational risk is a very important consideration. More importantly, *Shariah* compliance risk as part of operational risk is paramount to Islamic banks, which means Islamic banks must ensure, at all times, that all activities and products are in conformity with *Shariah* principles. It is, then, apparent that the dimension of operational risk exposure in Islamic banks is more sophisticated than in conventional banks.

Operational risk is now recognised as a type of risk which can contribute to significant losses in all financial institutions. For this reason, various techniques being applied in banks today in order to measure and manage operational risk. The methods set out by BCBS help the Islamic banks determine their capital in order to absorb operational losses. However, due to the small size of Islamic banks compared to the overall financial industry, the more advanced methods in the calculation of operational risk based capital is still not feasible to be implemented. The absence of significant amount of loss data is also one of the problems that hinder Islamic banks to implement more sophisticated methods. Given the rapid growth of Islamic financial industry, it is expected that lack of data will not be the main issue in the near future.

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