

Basel II and Capital Requirements for Islamic Banks

M. Kabir Hassan*

Mehmet F.Dicle**

Although major differences exist between Islamic and conventional banks, it is required for Islamic banks to cope with international banking standards and provide viable and safe banking grounds. Basel II emphasizes capital adequacy, risk management techniques, internal controls, and external audits. New approaches are described for weighting assets. Islamic banks will be required to comply with the standardized approach and measure risk exposure for capital adequacy. The IRB approach allows banks to alter the risk weight formula for SME borrowers. This will be useful for Islamic banks considering their relatively larger risk exposure of SMEs. Model-based approach provides treatment of risks in risk portfolios which may be especially important for Islamic banks. The necessary experience required to implement models based approach is extensive and Islamic banks may lack such experience. In terms of calculating capital adequacy ratio for Islamic banks in line with Basel II, the treatment of investment accounts should receive special attention.

1. Introduction

Wide range of efforts is spent to establish stabilized banking sector internationally. The 1988 Basel capital accord was one of the major efforts towards this direction. Basel Committee on Banking Supervision completed an accord with the primary purpose of stabilizing the international banking system and levelling the playing field.

The Basel Committee consists of central banks and bank supervisors of Canada, France, Belgium, Germany, Italy, Japan, Luxembourg, The Netherlands, Spain, Sweden, Switzerland, United Kingdom and United States. The accord mainly set risk-weighted minimum capital standard (8%) for international banks. It was adopted by more than 100 countries. Since January 1993 all international banks of G10 countries were bound by the accord.

The principal goal of stabilization of the accord was not achieved because of many shortcomings. Hall M.J.B. (2004) lists many important deficiencies including lack of legal enforcement, limited geographical coverage, flaw in methodology in

* Department of Economics and Finance, University of New Orleans, New Orleans, LA 70148, USA, mhassan@uno.edu

** Ph.D. Student, University of New Orleans, Department of Economics and Finance, mfdicle@uno.edu

the credit risk assessment process, usage of inexact risk weights, inducement of misallocation of capital resources, inducement of distorted pricing, lead to misallocation of resources and many more. As a result of these flaws the financial system was not stabilized. Due to risk classifications banks were led to short term loans instead of long term. Such tendency has caused the Asian crisis of 1997.

In order to correct the flaws with the accord, the Basel Committee adopted a new capital accord in 2003. The new accord will be implemented by the member countries of Basel Committee by the end of 2006. The new accord namely Basel II is based on three mutually reinforcing pillars: capital requirements, supervisory review and the market discipline. Basel II is expected to achieve the same objectives as the initial accord. The main difference relies on the adaptation of internal risk management models into capital determination for large international banks. Although the new accord has many implications on the banking sector and financial markets as a whole, the aim of this paper is to evaluate the effects of Basel II on Islamic banks and their operations in terms of capital adequacy.

The second part of the paper presents Islamic banks and their specialized instruments. The instruments are classified into two main categories: asset side and liability side. The third part discusses the risk management in terms of several different risks. Risk management system is further discussed. Special emphasis is paid to risks associated with application of Islamic banking instruments. The fourth and the fifth parts of the paper discuss capital adequacy in line with Basel II. Risk Modelling for Islamic banks is presented along with capital adequacy discussion for Islamic banks.

2. Islamic Banking

Islamic banks are entities that perform financial intermediation according to the rulings of Shari'ah. Collection of deposits and utilization of credits make Islamic banks similar to conventional banks. The risks exposed by Islamic banks to customers and to financial system are also very similar. However the unique nature of products differentiates Islamic bank in many aspects. Exclusion of interest, prohibition of making money from money, implementation of profit and loss sharing system and prohibition against excessive uncertainty are main sources of differences associated with Islamic banks. The types and extend of risks differ in great extend. These differences will be apparent after an evaluation of all financial products of Islamic banks.

Islamic banking concept was initiated about three decades ago. Today Islamic banks are established in 19 countries with total asset size of 132 billion US Dollars. The countries include; Algeria (1), Bahamas (1), Bahrain (7), Bangladesh (3), Brunei Darussalam (2), Egypt (2), Indonesia (1), Iran (12), Jordan (2), Kuwait (1), Malaysia (2), Pakistan (3), Qatar (2), Saudi Arabia (1), Sudan (13), Tunisia (1), Turkey (5), United Arab Emirates (3) and Yemen (2). Most of these countries include conventional banks side by side with Islamic banks. In fact, only countries that have adopted the Islamic banking principles for the entire financial system are Iran and Sudan with

Pakistan in the process (Hassan M.K., 2003).

Table 2.1 Selected financial figures for Islamic banks and for conventional banks for the 19 countries where Islamic banks operate.¹

(Thousand of US Dollars)	Year	Total	Total	Total	% of Market	% of Market
Number of Banks		411	64	347	15.57%	84.43%
		All	Islamic	Conventional	Islamic	Conventional
Loans	2002	505,383,319	58,564,690	446,818,629	11.59%	88.41%
Loans	2001	497,606,526	69,300,868	428,305,658	13.93%	86.07%
Loans	2000	495,145,769	116,638,461	378,507,308	23.56%	76.44%
Loans	1999	449,567,899	96,120,001	353,447,898	21.38%	78.62%
Fixed Assets	2002	19,715,333	2,773,090	16,942,243	14.07%	85.93%
Fixed Assets	2001	19,720,726	3,510,021	16,210,705	17.80%	82.20%
Fixed Assets	2000	17,847,920	6,758,194	11,089,726	37.87%	62.13%
Fixed Assets	1999	16,939,848	5,861,634	11,078,214	34.60%	65.40%
Total Assets	2002	1,126,695,543	132,135,866	994,559,677	11.73%	88.27%
Total Assets	2001	1,114,631,294	149,229,165	965,402,129	13.39%	86.61%
Total Assets	2000	1,095,932,093	223,272,903	872,659,190	20.37%	79.63%
Total Assets	1999	993,367,109	177,700,412	815,666,697	17.89%	82.11%
Customer & Short Term Funding	2002	934,003,534	113,246,918	820,756,616	12.12%	87.88%
Customer & Short Term Funding	2001	921,927,397	124,025,964	797,901,433	13.45%	86.55%
Customer & Short Term Funding	2000	873,399,971	167,403,328	705,996,643	19.17%	80.83%
Customer & Short Term Funding	1999	802,595,458	125,042,571	677,552,887	15.58%	84.42%
Equity	2002	106,358,733	11,194,457	95,164,276	10.53%	89.47%
Equity	2001	97,029,410	10,664,704	86,364,706	10.99%	89.01%
Equity	2000	88,103,263	13,286,790	74,816,473	15.08%	84.92%
Equity	1999	70,147,503	9,027,731	61,119,772	12.87%	87.13%
Net Income	2002	15,558,691	2,300,606	13,258,085	14.79%	85.21%
Net Income	2001	4,075,413	1,542,070	2,533,343	37.84%	62.16%
Net Income	2000	11,589,934	2,209,955	9,379,979	19.07%	80.93%
Net Income	1999	-1,051,917	1,078,110	-2,130,027		

¹ Source: BankScope Database, Bureau van Dijk, release 165.2, update April 2004.

Other countries Islamic banks may be pure Islamic or it may be possible for conventional banks to have Islamic banking windows. However, to distinguish the differences and similarities between Islamic banks, this study includes pure Islamic banks. Conventional banks with Islamic banking windows are not classified as Islamic banks. For the same reason banks operating according to Islamic principles but not collecting deposits are also excluded along with non-deposit conventional banks. The data mainly compares deposit collecting Islamic and conventional banks.

Table 2.1 presents selected financial figures for Islamic and conventional banks. In terms of number of banks, Islamic banks account for the 15.57% of the total market. In terms of total assets 11.73% of the market belongs to Islamic banks. Similar percentage holds for loans and customer and short term funding figures. However, in terms of equity, the share of Islamic banks is down to 10.53%.

All of the Islamic banks have to compete with conventional banks, either domestically or internationally. It is therefore required for Islamic banks to cope with international banking standards and provide viable and safe banking grounds for their customers. It is also imperative to take advantage of developments in banking and adopt them to the Islamic banking system to accomplish safe, sound and effective operations.

2.1 Islamic Financial Instruments: Asset Side

2.1.1 Trade Related Instruments

Murābahah

Murābahah transaction is a deferred sale procedure. In a *murābahah* transaction, Islamic bank purchases goods and sells them to a third party with added profit. The profit realized by the Islamic bank is trade profit. It is possible to sell the goods with Instalment payments. However, it is not possible to sell the goods without first owning and acquiring them. The purchaser of goods knows the initial purchase price and the profit charged. If the initial price is not declared and the buyer does not know the cost and the profit then the transaction is called *musāwamah*. Also, the goods must be approved for trade in terms of Shari‘ah. Thus commodities like pork products and alcohol cannot be subject to *murābahah*. Precious metals that could be used as money cannot be subject to *murābahah* as well, including silver and gold.

Islamic bank are obligated to acquire the goods before selling them. Thus the main rule of “one cannot sell what he does not own” is obeyed. This obligation brings many problems with it. Majority of Islamic banks operate within banking environments that are designed for conventional banks. Necessary regulations may not exist to undertake *murābahah* transactions completely in line with Shari‘ah. For instance; banks may not be allowed trade commodities and therefore issue

invoices and realize profits. There may be tax issues involved for trading activities at banks.

Islamic banks use *murābaḥah* to facilitate short term financing. The structure and the pricing of the transaction are similar to some credit techniques utilized by conventional banks. It would be normal for the public to think that *murābaḥah* transactions are not genuine Islamic products. Although the rationale behind sale based *murābaḥah* transaction is very clear, the rationale behind pricing is not. Islamic banks have to offer competitive rates of return for the profit and loss deposit holders in order to avoid withdrawals. In order to achieve competitive rates of returns the Islamic banks will want to impose higher profits on *murābaḥah* sales. Too high of a profit rate will drive the purchaser of the *murābaḥah* transaction away from Islamic banks to alternative sources. Thus, the Islamic banks should set profit rates according to the market rates.

Murābaḥah transactions also bring risks and additional costs with it. Sharī'ah provides the purchaser with the right to walk away from the transaction and return the goods, if s/he is not capable of making payments. It is not possible for Islamic banks to hedge against such risk. However, such risk does not bring total loss, instead liquidation of credit transaction with additional costs. Many Islamic banks, due to high risk involved cannot provide such right to the purchaser. "OIC Fiqh Academy, AAOIFI and most Islamic banks treat the promise to buy as binding on the client" (Khan and Ahmed, 2001).

Islamic banks provide a schedule of payment for the purchaser of goods. The schedule includes the principle and the profit. However, there can be neither a financial penalty nor financial compensation for late payments. In fact, Sharī'ah requires that the seller (Islamic bank) should assist the purchaser and if really necessary, provide remission. Chapra, 2000, presents many different views about late payments and how to penalize them. Many alternatives to punish the defaulting party including blacklisting and imprisonment but none for compensating the loss incurred by the seller. Having a court decision for such decision was also argued but there is no Fuqaha ruling on compensating the seller financially.

The profit and the scheduled payments for the purchaser are fixed at the *murābaḥah* transaction. Therefore, even if the market rates change drastically, Islamic banks cannot change the payment schedule. Such risk is called the mark-up risk. Thus, Islamic banks should forecast for the duration of the *murābaḥah* transaction and set the profit rates accordingly. Such task is very challenging considering the volatilities within the financial systems, especially in emerging markets where some of the Islamic banks are operating.

Along with many risks and weaknesses, *murābaḥah* has many benefits as well for Islamic banks. The most important advantage is the fact that Islamic banks collateralize the debt above and beyond the good itself. Thus the risk of loss becomes much less than what a conventional bank would assume for a credit

transaction. The nature of *murābaḥah* transaction makes it certain that a good is traded and Islamic bank once possessed the item. Therefore Islamic banks should have basic knowledge of how to obtain such a good and how to liquidate.

The terms structures of *murābaḥah* transactions are relatively short and they are considered least risky instruments in terms of credit risk within the Islamic banking credit portfolio (Khan and Ahmed, 2001).

Ijārah

Ijārah means to rent usufruct of a property to another party. The Islamic banks as the property owner rent usufruct of a property to customers. With *ijārah*, Islamic banks structure rental payments in a schedule much like *murābaḥah* transactions. However the main difference is the ownership status. In *murābaḥah*, Islamic bank buys the goods from a party and sells them to another party with added profit. With the *ijārah* transaction, Islamic bank is the owner of the subject goods and simply renting them. The same restrictions apply to the type of goods that are not allowed by Sharī'ah for *murābaḥah* transaction with additional category of consumable goods for *ijārah* transactions.

Islamic banks utilize *ijārah* instead of what is known as operational leasing in conventional banking. The legal definitions for leasing transactions are much more available in conventional bank dominated financial systems. Considering the structural similarities with *ijārah* and leasing transactions, Islamic banks have ease in adopting *ijārah* to their regulatory systems. The main problem arises with the fact that the conventional banks utilize leasing as a mode of financing with financial leasing transactions rather than operational leasing. With the financial leasing, the cost of the goods and interest are included within a payment schedule and ownership of the goods is transferred. Thus, Islamic banks have to change the structure of financial leasing. Most of the time, the ownership is transferred to the customer at the end of the rental period as a gift or at the market value. If the buyer wants to purchase the item at the end of the lease period then an option can be added to the contract and the payment structure can be made accordingly. Such an option is called *ijārah wa-iqtinā'*. "Some Fuqaha do not allow Islamic banks to undertake *ijārah* ending in ownership" (Chapra and Khan, 2000).

Ijārah transactions bear very low credit risk which is second after the *murābaḥah* transaction (Khan, T and Ahmed, H, 2001). In many aspects the risk associated with *ijārah* transactions are similar to those of *murābaḥah* transactions. In terms of collateralization, *ijārah* become much more secure due to the fact that Islamic banks hold the title to goods that are subject to *ijārah*. However, it should be noted that the renter of the goods is liable for the safekeeping of the goods.

The payment schedule that specifies the rents is fixed before the rent period starts. Thus, the Islamic bank assumes the risk of changing market conditions. The same concerns associated with mark-up price risks of *murābaḥah* transactions. Also, similar risk associated with late payments and financial compensation thereof

still applies to *ijārah*. It is possible to structure the *ijārah* transactions for short periods for frequent renewals with different terms which are subject to approval of both sides of *ijārah*. In such a case, Islamic banks assume the risk of not having renewals.

The maturity term structure of *ijārah* transactions is longer than *murābahah* transactions but in general short to medium term. Considering the cost of evaluating each transaction's risk and cost of entering into an *ijārah* transaction, longer maturity brings lower overhead costs per transaction. Together with low credit risk nature and lower overhead costs, *ijārah* transactions are included within the credit portfolio of Islamic banks.

Most of the countries provide a tax advantage for leasing transactions in one way or another. The main advantage for the renter in *ijārah* transaction is the fact that the goods are kept off balance sheet and rent payments are expensed. Lower value added taxes are also common Practise to support leasing transactions. Such advantage is very important for Islamic banks that are required by Sharī'ah to purchase and acquire subject goods.

Salam

For *murābahah* and *ijārah* transactions, Islamic banks are obligated to purchase the goods and sell afterwards with their profits. It is essential for Islamic banks to have full possession of the goods. Sharī'ah forbids the sale of things that one does not own and posses. However there are two exceptions; *salam* and *istiṣnā'*. The need for *salam* transaction is associated with pre-harvest needs of farmers and alike. While the exception is made, restrictions were made clear by the Prophet (SAV); "Buy fruits by paying their prices in advance on condition that the fruits are to be delivered to you according to a fixed specified measure within a fixed specified period".²

With the *salam* transaction, Islamic bank may purchase goods that will be delivered at a future date with an advance full payment. *Salam* transaction requires definition of goods, payment and delivery terms in detail. The payment has to be done when entering into a *salam* contract. The future delivery of goods makes *salam* contracts similar to forward contracts. The main difference however is the up front payment. Such payment puts the buyer into risk of delivery. The seller may deliver late or may not be able to deliver at all. Thus Islamic banks entering into *Salam* contracts are assuming default risk.

The up-front payment makes the purchaser of the *salam* contract vulnerable to price changes. These changes may cause losses. The Prophet (SAV) said: "If anyone pays in advance he must not transfer it to someone else before he receives

² MSA-USC Hadith Database, Sahih Bukhari, Volume 3, Book 35, Number 455, Narrated Ibn Abbas.

it”³. Thus, unlike forwards, *salam* contracts cannot be sold to other parties and take advantage of market changes or cut losses. However the seller and the purchaser may agree that in case of unacceptable losses of one party, settlement will take place to cut losses. Such Practise will avoid *gharar* and should be given special consideration. “In Sudan, such a contractual arrangement known as Band al-lhsan (beneficence clause) has now become a regular feature of the *Salam* contract.” (Khan and Ahmed, 2001).

Salam contracts are fourth in terms of credit risk (Khan and Ahmed, 2001). However, *salam* transactions provide alternative financing technique for Islamic banks. The main problem that *salam* transactions cause is the fact that Islamic banks will receive commodities and take full possession. However, it is possible to sell proceedings of the *salam* through another *salam* transaction namely through parallel *salam*. It is imperative that each *salam* transaction is separate and that they are not tide up in a back to back basis. Also, the seller of one transaction cannot be the buyer of the other transaction.

Istiṣnāʿ

Istiṣnāʿ contract is very similar to *salam* contracts. The main differences are the fact that *istiṣnāʿ* contract involves production of a commodity and that it does not require up-front payment. The buyer orders a production of a specified commodity from a manufacturer. The payment is agreed upon up-front in *istiṣnāʿ* contracts and the delivery of goods is made at a future date. It is imperative that the specifics of the transaction are set forth when entering into the contract including, payment terms, specifics of the goods, delivery date and place etc.

Istiṣnāʿ contract is binding on both parties. The important aspect however is the fact that the obligation starts with the production process and not with the contract. Thus, before the manufacturer starts to produce, any party may cancel the transaction. After the production starts, the cancellation requires agreement of both parties.

While *istiṣnāʿ* transactions are considered third in terms of risk (Khan and Ahmed, 2001), all characteristics of *istiṣnāʿ* transactions are very similar to *salam* transactions. Main difference is the payment. In *istiṣnāʿ* contracts, the payment is not necessarily made in advance. In terms of risk, this is an important difference. The risk involving *salam* was the default of the seller or his/her inability to deliver. In case of such default, if the payment is done up-front like in *salam* transactions, the Islamic bank has to recollect the funds as much as possible. If the payment is made during the manufacturing process, then the losses are limited.

³ MSA-USC Hadith Database, Sunan Abu-Dawud, Book 23, Number 3461, Narrated Abu Sa'id al-Khudri.

2.1.2 Equity Related Instruments

Muḍārabah

Islamic banks provide trade related financing for customers who are in need of funds. These transactions are usually short term and involve a specific item. Islamic banks can also provide financing on equity basis and become partners in operations. Such long term commitment on Islamic bank side provides different kind of establishment and financial structures.

Muḍārabah is one of the main equity participation of Islamic banks. Through *muḍārabah*, Islamic bank invests the capital required to raise and run a business entity and establish a partnership with a person or persons to manage the business. The Islamic bank as the investing partner is called “*rabb-al-māl*” and the managing partner is called “*muḍārib*”. While the investing partner provides all the capital, the managing partner provides no funding. Investing partner can limit the operations to a particular area (restricted *muḍārabah*) or may leave it entirely to the managing partner. Except such limitation, investing partner has no right to intervene to the management of the business.

The investing partner owns all the assets of the business but any profit realized through the operations is shared by investing and managing partners mutually. The profit ratios have to be defined at the establishment stage and cannot be a percentage of the capital. It has to be distribution of profits with specified fractions of the profit to each partner. The distribution of the profits does not have to be on equal terms. Either side can have a larger portion of the profit. The profit can also be realized on different businesses conducted instead of overall business and different profit sharing ratios can be set up for different businesses. The only compensation that either partner can obtain is the profit. No other compensation such as salaries, fees or commissions can be claimed.

The investing partner bears the risk of loss. While the investing partner loses money for losses, the managing partner loses compensation for his/her work. The managing partner cannot be held liable for any of the losses incurred. However, in case of negligence or misconduct investing partner has the right to seek compensation from the managing partner. Any profit made after realization of losses is paid to cover for the losses and the rest is distributed according to the profit sharing ratios.

Muḍārabah has many risks associated with it along with many advantages. The main risk is the business risk. Operating a business has its own risks and Islamic banks as the investing partners take such risk. It is not possible to hedge financially against such risks but operational precautions may be taken by the managing partner. Another risk associated with *muḍārabah* is the fact that any partner has the right to end the partnership at any point in time and result in liquidation of the business. It is not possible to enforce neither partner to continue the business. Such

an option increases the risks associated with *muḍārabah* to an extent that many Islamic banks limit their *muḍārabah* exposure.

Since the Islamic bank is establishing a partnership and since the managing partner cannot be held responsible for any operational losses, Islamic bank cannot collateralize the risk. Therefore the *muḍārabah* structure equity finance becomes riskier for the Islamic banks. In fact it is listed as the fifth risky type of financing in terms of credit risk (Khan and Ahmed, 2001).

Islamic banks as financial intermediaries have to undertake the process of project evaluation which is very long and costly. The expertise that is needed for the decision process is complicated. It is also vital for the survival, profitability and safety of partnerships to audit and control day to day operations against any excessive risk without interfering with the managing partners responsibilities. These procedures are unique to Islamic banking and costly compared to other types of financing.

Islamic banks also risk their liquidity positions by becoming partners in business entities. It is expected to have a medium to long term maturity structure with *muḍārabah* transactions. Therefore, Islamic banks assume higher liquidity risks than what is assumed with trade related financings.

Business partnerships generate neither a fixed income nor a scheduled repayment schedule. Thus, the income expected from any partnership is not set before the arrangement. It is also not know when the business will start making profit distribution if it will at all. Therefore, the mark-up risk is considerably higher. Vulnerability against market fluctuations is diversified with different lines of business but in terms of profits to be distributed to deposit holders, *muḍārabah* becomes a very risky asset.

Along with many risks, *muḍārabah* has many benefits as well. With a successful project evaluation and establishment stage, businesses will generate incomes in terms of real trade profits. Such activity will contribute directly to the real economy as well as to the Islamic bank. Any income generated through real trade through a diversified portfolio is independent from short term interest rate fluctuations; providing stable returns for the profit and loss sharing account depositors of Islamic banks.

In terms of risks and benefits of *muḍārabah*, it may be suggested to Islamic banks to establish profit and loss sharing accounts directly tied to *muḍārabah* transactions. These accounts can be set up with single *muḍārabah* or several *muḍārabah* transactions as one portfolio. If the contents of these accounts are transparent then the terms of withdrawal can be restricted. In such a setup, Islamic banks would be acting as true agents of account holders and eliminate associated liquidity risk. Faced with only the business risk, *muḍārabah* transactions may bring competitive advantage to Islamic banks over conventional banks.

Mushārah

The two main problems in *muḍārah* transactions are the termination at will and mandatory confidence in management. *Mushārah* provides solution to these two major issues. In many aspects *mushārah* transactions are very much like *muḍārah* but participation to management and restrictions of liquidation makes *mushārah* unique and important investment tool for Islamic banks. For a *mushārah* transaction, an Islamic bank establishes partnership with other investors for a business entity. The management of the established entity consists of all investing partners. Thus Islamic banks participate to the established businesses financially and operationally.

Establishment requires clear definition of terms including, partnership shares, line of business and profit/loss distribution. There are different views on whether each partner is limited to receiving profit share equal to his/her equity participation ratio. Majority believes that the percentage of profit for each partner should be equal to the percentage of equity participation. There is however consensus about distribution of losses. The percentage of loss distributed for each partner cannot exceed his/her participation percentage. Any participation to the partnership must be in monetary terms and commodities cannot be accepted as capital contribution.

Management of the *mushārah* and the established business entity is handled by the investing partners. Direct participation and effort is necessary. There can be inactive partners within the partnership structure. There are views that inactive partners' profit share can be lowered. Participation in management limits the exposure of the Islamic bank to management negligence or misconduct. However, it requires expertise in the specific line of business. The business risk faced by the established company still exists but with possibility of having more active role in the entity.

Liquidation is restricted in the *mushārah* transactions. If one of the partners wishes to leave the partnership, he/she can do so without liquidating with the agreement of all partners and through a settlement process. If no agreement is reached then the partner has the right to take the company for liquidation. Compared to *muḍārah* transaction, *mushārah* restricts the partners to attempt to settle with other partners before liquidation. Prophet (pbuh) said: "All the conditions agreed upon by the Muslims are upheld, except a condition which allows what is prohibited or prohibits what is lawful". Thus, the right of a partner to take the company for liquidation may further be restricted if it causes harm to other partners and to the society. Such restriction provides Islamic banks with an opportunity to continue the business without one of the partners or with a replacement.

Islamic banks can establish investment deposit accounts directly tied to *mushārah* transactions. Just like *muḍārah* tied accounts, the liquidity risk would be totally eliminated along with lowered mark-up risks. The nature of

musharakah eliminates the management misconduct risks and limits to a great extent the liquidation risk. Thus, such investment accounts would only bear business risks that can be managed through diversified *musharakah* portfolios. Islamic banks establishing such accounts would be minimizing their liquidity, mark-up and business risks and transferring these risks to depositors.

2.1.3 Other Instruments

Qard Hasan

Islamic banks may have to provide short term loans with no compensation whatsoever. *Qard hasan* is extended to Islamic bank customers with no interest and no compensation whatsoever. Thus, Islamic banks provide such facility to service customers. Since there is no earning the terms and amounts are very limited. The main usage is to provide intraday financing for valued customers. Collateralization of such loans is usually very weak.

Shukūk

The liquidity problems faced by the Islamic banks raised the need for liquid Islamic financial securities. *Shukūk* is engineered as an Islamic bond. *Shukūk* transaction involves a participation certificate of a *shukūk* trust fund with assets with periodic lease income. The purchasers of *shukūk* become partners of the *shukūk* trust fund and such partnership entitles them to income distribution of the *shukūk* trust fund. Usually the *shukūk* has a maturity at which the assets are liquidated and income distribution ends.

There are many advantages of *shukūk*. Many rating agencies provide ratings for *shukūk* issues and such ratings provide liquidity to these securities. *Shukūk* issues can be bought and sold with ease just like bonds. Liquidity makes them ideal for short term investment. The lease payments that are provided on a long term basis also provide competitive returns on *shukūk* issues; making them attractive investment instruments for Islamic investors as well as conventional investors.

Islamic banks also invest in *shukūk* issues and provide financing for *shukūk* trust funds. With such a high liquidity and high return, *shukūk* is bound to be very important aspect of Islamic banks. The assets owned by the *shukūk* trust fund collateralize the *shukūk* issues. Positive international rating also provides indication of the level of risk.

Islamic banks themselves can also issue *shukūk* based upon their Islamic asset portfolio. A portfolio of *ijarah* and *salam* transactions may be used for *shukūk* issues and provide liquidity for Islamic banks. Such utilization of assets would also eliminate the deposit withdrawal risk because the purchasers of *shukūk* issues may trade the *shukūk* with each other as well as with the Islamic bank that issued them. More risky asset portfolios containing different *muḍarabah* and *musharakah* transactions may also be used as assets for *shukūk* issues for investors of different risk and return taste.

2.2 Islamic Financial Instruments: Liability Side

2.2.1 Current Accounts

Islamic banks collect deposits into current accounts for safekeeping purposes. With the enhanced technology, Islamic banks can offer many different services to these accounts. Many Islamic banks around the world established ATM networks and debit card systems to provide easy access to current accounts. Chequeing services are also attached to current accounts.

While many conventional banks offer interest payments to current accounts, Islamic banks do not provide any compensation. These accounts are treated by Islamic banks as *qard hasan* from deposit holders. The risk associated with current accounts therefore is minimal. Customers have access to current accounts without any restrictions and the funds can be withdrawn at account holders will.

Some Islamic banks' current accounts may represent more than 75% of their total manageable deposits (Khan and Ahmed, 2001). Therefore, is it normal to assume, based on the magnitude of the current accounts, that most of the Islamic banks blend the current accounts with investment deposits. Such treatment would leave the current account holders facing risks associated with investment accounts without any compensation. Current accounts holders will not participate in losses but the ultimate affect of such losses will be shared by current account holders as well.

2.2.2 Investment Accounts

Investment accounts are called profit and loss sharing (PLS) accounts. They may have different maturity structures. Depositors of PLS accounts assign the Islamic bank to act as their agent to conduct credit transactions and generate profit. Thus any profit or loss generated through the usage of these accounts belongs to PLS account holders. Islamic banks usually share part of the profit as their agency fee.

PLS account can have restrictions on the usage of funds or provide unrestricted rights to the Islamic bank for allocating funds. In any case profit or loss realized from investments made with PLS deposits will be distributed to PLS account holders.

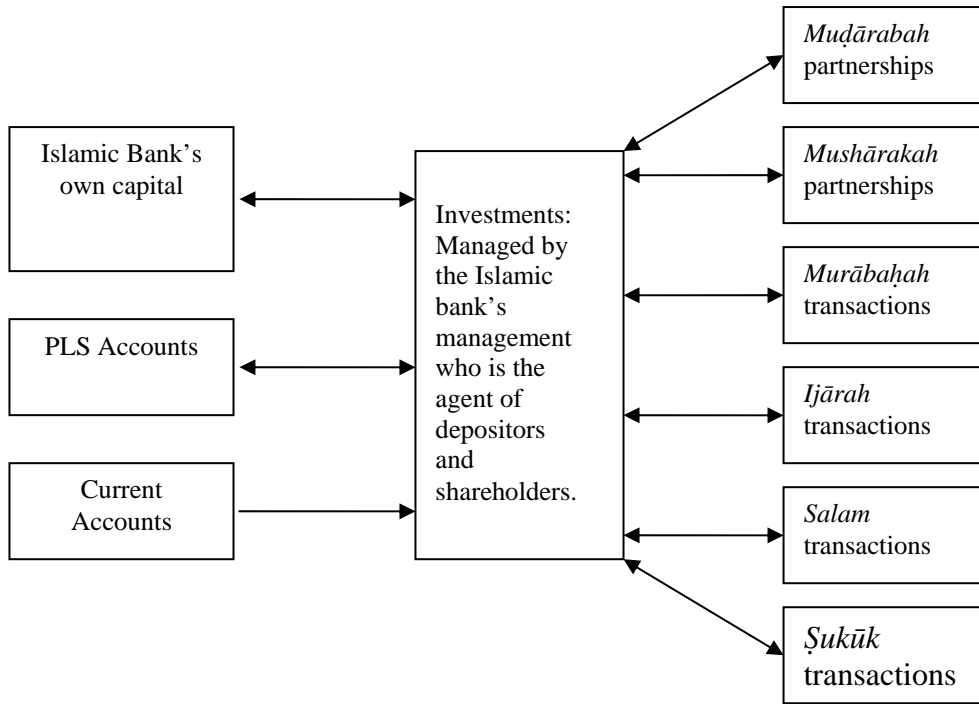


Figure 2.1: Investment process at Islamic banks

In terms of risks faced by PLS account holders; the business risks as well as credit risks associated with each of the credit instruments are present. Direct participation into credit and their outcomes exposes PLS account holders to risk that are not apparent for term deposit holders of conventional banks. Since, term deposit holders are promised a fixed return on their money, their main risk is the risk associated with the well being of the financial entity. However, with PLS accounts, the risk associated with the financial entity still exists and other important risks are added. While taking risks, PLS account holders also enjoy the benefits of Islamic credit instruments.

3. Risk Management

3.1 Types of Risks Faced by Banks⁴

3.1.1 Market Risk

Banks operate in established financial environments with several other types of financial entities. The assets and liabilities of banks are part of the overall financial system. Market risks are the risks originating from the market itself. Market risk can be divided into two sub categories; systematic and unsystematic. Overall changes in market conditions will expose banks to systematic market risk. Movement in specific asset will generate unsystematic risk for banks holding those assets. For instance, any change in the price of domestic currency will expose banks to systematic risk whereas changes in the price of cotton will only affect banks that hold positions in cotton.

There are many market conditions that affect the banks and expose them to market risk. Changes in price of equity, interest rate, foreign exchange rates and prices of commodities are the main conditions. The balance sheets of the banks contain assets, liabilities and equities that are financed. Any price change in any one of the items will affect the banks' financial standing. A bank with unmatched currency of assets and liabilities will be exposed to foreign exchange risk. A variable interest rate on assets and fixed interest rate on liabilities will expose banks to interest rate risk.

3.1.2 Credit Risk

Banks are exposed to credit risk through default. Any counterparty of a credit transaction will expose the bank to credit risk. A customer at a loan agreement will expose the bank with credit risk due to the chance that s/he will not meet his/her obligation on time or at all. On such a circumstance the principal and the earnings are at risk. Banks are exposed to credit risk on treasury operations as well. Bonds carry the default risk of the issuer for the coupon payments and for the principal. Even a simple foreign exchange deal exposes banks to credit risk. As long as the currencies are not exchanged simultaneously and at the same physical place, the credit risk of the trading partner will stand. Credit risk limits the amount of transaction that will be conducted with a specified counterparty.

Even governments can expose banks to credit risks. Eurobonds issued by different countries carry different interest rates. The differences in interest rates reflect the terms of the bonds and the amount of credit risk each country exposes to bond holders.

⁴ See Khan and Ahmed (2001).

3.1.3 Liquidity Risk

Banks have daily liquidity requirements arising from activities including withdrawals, paying Cheques, regulatory payments and credit payments. It is the responsibility of banks to undertake these payment obligations on a timely manner. Risk of failure to do so is the liquidity risk. Banks have the option of borrowing in the money market for short term liquidity needs but such borrowing will be costly.

Almost all of the central banks as the regulatory agencies over banks require some percentage of assets to be kept in liquid assets. While some of these liquid assets are kept at the bank, some are kept as liquidity reserves at the central banks. Banks also manage liquidity risk through cash flow management. It is also reasonable differences between the duration of assets and duration of liabilities. For a bank with all time deposits with a maturity of 30 days and credit deals with maturity of 180 days will face liquidity risk in case time deposits decide to withdraw.

3.1.4 Operational Risk

Operational risk is associated with banking systems and employees. Procedures of banks are handled with integrated technological products. Any failure of these systems exposes banks to operational risks. With the advanced technology, banks can operate more effectively and efficiently. Decision making process, customer database including deposits and credit deals are all processed through computers. The security of systems are very important as well as the system designs. Any flaw in any of the process will expose banks to risks to a great extend.

Employees also expose banks to operational risks. A foreign exchange transaction conducted by a dealer is vulnerable to risk of human error. A credit proceeding paid without collecting the collateral also exposes banks to operational risk. An unlocked branch of a bank at night also exposes banks to operational risk.

3.1.5 Legal Risk

Risks arising from laws and regulations are legal risks. Many countries have restrictions to kinds of businesses that banks are allowed to conduct. For instance; leasing, insurance or brokerage house activities may be restricted areas of operation for banks. Any trading book activity may become jurisdiction of capital markets board and may require disclosure of information accordingly.

International business activities may also expose banks to legal risks. A bank that involves marine business may require extensive knowledge about marine laws. Any assumption based activity may become very costly for banks.

3.2 Risks Associated With Application of Islamic Banking Instruments

Islamic banks face the risks that are normally faced by conventional banks. There are however additional risks that Islamic banks face due to special characteristics of Islamic banking financial instruments.

3.2.1 Market Risk

Unsystematic risk

Through utilization of *murābahah* or *ijārah*, Islamic banks are exposed to market risks of specific commodities. Since Islamic banks purchase commodities and take them into their possession, any change in price will affect their ability to sell them to third parties. Also, same risk applies to the value of the collateral. Although, Islamic banks collateralize *murābahah* and *ijārah* transactions, the commodity is also considered part of the collateral. Any change in price would not affect the amount of debt owed to the Islamic bank but would change the value of the collateral.

Through *muḍārabah* and *mushārahah* partnerships, Islamic banks expose themselves to risks that are specific to line of businesses. For instance, if *muḍārabah* partnership is established for a company that deals in textiles and if the prices of textiles decrease drastically, Islamic banks' investment would be affected negatively. Such risk is unique to Islamic banks and should be evaluated thoroughly. Islamic banks prefer trade related instruments over equity related instruments due to the business risk involves.

Islamic banks also face unsystematic risk with *istiṣnā'* and *salam* contracts. Any single and independent event may affect the production/harvest of the subject goods. Therefore Islamic bank would receive the promised goods late or may not receive at all. Product specific risk is also vital for Islamic banks to evaluate.

Systematic risk

Investment account deposit holders are not promised a fixed return. Thus, Islamic banks are not exposed to any interest rate risk directly. However, Islamic banks face interest rate risk in two indirect ways.

First, any profit margin (mark-up) added to the *murābahah* transactions would use a benchmark rate. This rate should be high enough to meet the expectations of PLS account holders for their investments and should be low enough to be acceptable for the credit customer. Therefore the benchmark rate will be a rate close to market interest rate. Any increase in benchmark rate will expose Islamic bank to risk of withdrawals due to the fact that *murābahah* deals have fixed payment schedule and the profit amounts cannot be changed.

Second, some of the credit customers of Islamic banks also work with conventional banks. In case of interest rate jumps, such companies would prefer to make payments to conventional banks due to high cost of increased interest. They may even choose to divert the funds that they plan to pay towards their *murābahah* payments, to their debt with conventional banks. The fact that Islamic banks cannot impose penalty on late *murābahah* payments exposes Islamic banks to late payment risk and such risk increases with increased market rates.

Islamic banks may have different currency denominations for assets and liabilities and any changes in currency prices exposes Islamic banks to foreign exchange rate risk. While conventional banks may employ derivative products to hedge such risk, no financial product exists for Islamic banks. Therefore Islamic banks are exposed to foreign exchange rate risk more than conventional banks.

Credit instruments of Islamic banks require involvement into real business sectors. Conventional banks on the other hand, may choose to keep more government bonds than commercial credit. Therefore Islamic banks would be exposed to macroeconomic changes more than conventional banks. For instance, any change in corporate taxes would affect the income of commercial customers and therefore Islamic banks.

3.2.2 Credit Risk

The nature of *murābahah* and *ijārah* transactions of Islamic banks exposes them to similar credit risk with commercial credits of conventional banks. However, *muḍārabah* and *mushārahah* partnerships have unique credit risks. In *muḍārabah* partnership, the operations depend on the managing partner. Therefore the creditability of the managing partner becomes a major issue. Islamic banks are exposed to credit risk in *muḍārabah* via managing partner's fraud, misconduct, negligence and incompetence. The credit risk of the resulting business also exists. If the business cannot generate profits and starts realizing losses, Islamic bank will realize losses as well. This type of credit risk also applies to *mushārahah* partnerships.

Ijārah and *salam* transactions also expose Islamic banks to credit risk. In both type of transactions, customers are expected to either produce or harvest some goods. Their end product is purchased ahead of time to provide funding. However, delayed or incomplete production/harvest will generate losses for Islamic banks.

Islamic banks cannot hold interest bearing securities in anyway. While it is a normal procedure to ask for securities as collateral for credit, Islamic banks can only ask for non-interest bearing instruments. It may not be easy to liquidate a non-interest bearing instrument such as mortgage. Whereas liquidating a bond would actually be easier than recollecting the loan. Thus, Islamic banks face market risk in collateralization of credits as well.

3.2.3 Liquidity Risk

Islamic banks cannot borrow from money markets that operate with interest. Central banks also lend money with interest. The fact that there is no lender of last resort exposes Islamic banks to liquidity risk in a vital way. In fact, illiquidity is the most important risk that an Islamic bank faces.

Murābahah and *ijārah* transactions have fixed scheduled payments. They cannot be called like credits of conventional banks. *Muḍārabah* and *mushārahah* transactions are only make payments in case of profits and principal amount are collected in case of liquidation. *Istiṣnā'*⁵ and *salam* transactions have very long maturity structures and any collection of principal is not possible before the completion/harvest of the goods.

Conventional banks keep fixed income securities within liquid assets. Therefore liquidity of conventional banks is usually higher than Islamic banks. Since Islamic banks cannot get any return on liquid assets, the trade-off between safety and profitability is considerably higher for Islamic banks.

Table 3.1: *Liquid assets/Customer and short term funding for Islamic and conventional banks.*⁵

Year	2002	2001	2000	1999
Islamic Banks	35.33%	54.65%	49.43%	39.71%
Conventional Banks	37.86%	43.38%	41.76%	43.74%

The table illustrates the fact that although Islamic banks have necessity by nature to be more liquid than conventional banks, in Practise it is the opposite. The cost of liquidity is directly reflected upon the profitability of Islamic banks and their preference is to have lower liquidity levels. The fact that banks keep short term securities as liquidity and earn interest on them provides a safety cushion that is not available for Islamic banks.

3.2.4 Operational Risk

Standardized technology products are developed for 18,217⁶ banks that exist around the world. However, the products are not standardized for 64 Islamic banks. Custom made banking software brings many complications with it. The chance of having a flaw within the system is increased. The frequency of upgrades will increase and require more frequent training for the staff.

⁵ Source: BankScope Database, Bureau van Dijk, release 165.2, update April 2004.

⁶ Source: BankScope Database, Bureau van Dijk, release 165.2, update April 2004.

The operations of Islamic banks are not standardized as well. Even the application of Islamic banking products may differ from one bank to another. Many products of Islamic banks require adaptation to regulations that are designed for conventional interest bearing systems. These adaptations may bring complications with them and therefore expose Islamic banks to operational risk.

Standardized accounting principles are developed by International Accounting Standards Board (IASB) for all companies including banks. However IASB does not include any standard to be used for Islamic banks or conventional banks with Islamic banking windows. Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) works toward providing standards for Islamic financial institutions. However, the standardized accounting principles of AAOIFI are not adopted by most of the regulatory agencies for Islamic banks in their jurisdiction.⁷ AAOIFI cooperates with IAS to include standards designed for Islamic banks.⁸

3.2.5 Legal Risk

Except Iran and Sudan Islamic banks are operating in interest bearing financial environments. Such economies expose many risks for Islamic banks. Especially if regulations designed for conventional banks do not include specific procedures for Islamic banks then complications may arise. Many regulations do not allow banks to participate in trade actively. These may limit the ability of purchasing commercial items and selling them to third parties. Thus, it becomes very cumbersome to facilitate *murābahah* transactions.

Also, equity participation of banks may be limited. Such restriction would make it impossible to undertake *muḍārabah* or *mushārahah*. Islamic banks may find sideways to overcome legal obstacles but such procedures would expose Islamic banks to legal risks.

Operating within interest bearing environments and competing against conventional banks also expose Islamic banks to legal risk in terms of Shari'ah. Islamic banks that are subject to regulations of conventional banks may be exposed to risk of Shari'ah compliance.

3.3 Risk Management System

The risks faced by Islamic banks include the same risks faced by conventional banks and risks associated with facilitating Islamic financial instruments. It is therefore very important for Islamic banks to establish an effective risk management system. In order to operate profitably, it is necessary for the risk management system to be operation oriented.

⁷ For detailed review of compliance with international standards see Chapra, M. U. and Khan T. (2000).

⁸ AAOIFI communication with IAS dated March 6, 1999 is available at www.iasb.org.

Establishing risk management systems in Islamic banks involves several stages that need to be custom made. Involvement and dedication of all levels of staff, management and board of directors is necessary. Standardized procedures should be established for each and every operation as well as every financial instrument. Standards of International Standards Organization (ISO) should provide necessary guidelines for such standardization process. ISO also requires active participation of staff, management and board of directors.

Policies and operational guidelines should be defined and employed. Compliance with such guidelines within the framework of standardized operations should minimize related risks. However, internal control systems are necessary to Cheque such compliance and to report flaws. Cooperation of staff if very important to locate each flaw within the system and provide solutions. Internal auditing should be alert for controlling systems flaws and to provide solutions for them. System development should be prioritized. Cooperation of other Islamic banks should be established for effective Islamic banking system.

Definition of risks should be made and risk measures should be defined. Procedural system should include risk measurement procedures and standard internal audit should conduct periodic system wide Cheque-ups. As long as Islamic banks can measure the type and extend of risk exposed to them, they will be able to work for risk mitigation techniques to eliminate risk. However, derivative products available for Islamic banks to mitigate risks are limited compared to conventional banks (Zaher and Hassan, 2001). The procedure for risk management should include definition, measurement, control, mitigation. External audit would bring unbiased opinion but it is more effective to employ such services with expertise in Islamic banking.

Internal audit systems should be adequate to control and correct the bank's overall system. Auditors should be experienced in Islamic banking and all related operations. The authority and responsibility of auditors should be defined by considering many aspects. Auditors should represent all stakeholders. Internal audit should be responsible for, "ensuring that policies and procedures are complied with and review whether the existing policies, Practises and controls remain sufficient and appropriate for the bank's business" Ahmed J. (2003).

4. Basel II: Capital Adequacy

The new capital accord (Basel II) of the Basel Committee aims to establish market discipline. The main emphasis is on the risk based capital adequacy. According to Basel II, some selected international banks will be allowed to use their own internal risk management systems. Other banks will continue to use standardized risk management systems with enhanced rating systems. Adoption of external rating facilities and guidance for supervisory bodies in relation to external ratings are major components of risk management process within the Basel II accord.

Islamic banks should adopt Basel II and integrate suggested systems to their operations for many reasons (Hassan and Chowdhury, 2004). Any failure of an Islamic bank will generate systematic risk for the financial system overall. Furthermore, any failure will damage the Islamic banking sector. Also, in order for Islamic banks to receive international recognition they will have to Fulfil many criteria and compliance with international standards is one of them.

Basel II emphasizes capital adequacy, risk management techniques, internal controls, and external audits. Enhanced risk management and internal controls are encouraged via providing several incentives. While capital adequacy definitions are not changed with the new accord, new approaches are described for weighting assets: standardized approach, the internal ratings-based approach, and model-based approach.

Considering the risks associated with specialized Islamic products and their unique nature, Islamic banks face challenging task of adopting international standards. It should be taken into consideration that some of the risk models may expose Islamic banks to other risks that are not apparent for conventional banks. Methods that are developed for conventional banks should be amended and tailor made for Islamic banks and such procedure may require extensive input in terms of data availability.

Due to the unique nature of financial instruments, Islamic banks can keep profit and loss sharing accounts off the balance sheet. On the other hand, conventional banks cannot do the same for time deposits. Such accounting treatment would expose Islamic banks to capital adequacy risk. Adoption of AAOIFI standards provides a resolution for the issue by requiring Islamic banks to keep all deposits on the balance sheet without differentiating between current accounts and PLS accounts. However, IAS does not have any accounting procedure to overcome such obstacle. In countries where compliance with IAS is mandatory without any room for AAOIFI standards may still have Islamic banks with off balance sheet PLS accounts.

4.1 Standardized Approach⁹

Standardized approach provides guidance for supervisors in adopting appropriate source of external ratings for banks. External ratings are utilized for measuring credit risk. Fixed risk weights are established for each supervisory category and banks are required to allocate their credit exposures into supervisory categories such as corporate loans.

⁹ See _____ (2004).

Table 4.1: Average (per bank) figures of Islamic banks and Conventional banks for years between 1999 and 2002.¹⁰

(Thousands of US Dollars)	Islamic Banks	Conventional Banks
Number of Banks	64	347
Loans	1,664,690	1,292,034
Fixed Assets	90,253	46,038
Total Assets	3,246,550	2,875,528
Customer & Short Term Funding	2,542,617	2,398,502
Equity	209,884	250,074
Net Income	34,322	18,441

Table 4.1 illustrates that the Islamic banks, on average, have more assets compared to conventional banks. Considering the fact that, only selected banks that meet certain criteria will be allowed to apply internal ratings-based approach, with larger average assets, Islamic banks may also become eligible. However, in terms of absolute figures, Islamic banks are categorized as medium to small. Therefore, will be required to comply with the standardized approach to classify and measure risk exposure for capital adequacy.

There are several aspects of standardized approach that are enhanced and expanded compared to the old accord. Risk mitigants including collateral, guarantees and derivate products are recognized within the standardized approach with a wider range. The effects of a specific risk mitigants on overall risk measurement are defined. The definition is not extended to Islamic financial instruments aspects. Transactions such as *murābahah* and *ijārah* are structured similarly to conventional banks. Their collaterals will benefit from the expansion and be at advantage because of the involvement of real goods. Definition of collateral for partnerships such as *muḍārabah* and *mushārah* are very troublesome for Basel to include within the accord. At first look, these partnerships may require collateral neither for expected profits nor against principal investments. If a bank establishes a *mushārah* transaction, how could it be possible to ask for collateral and from whom the collateral will be collected. Is it legal in terms of Sharī'ah to collateralize investments of *mushārah* or *muḍārabah* partnerships? If little collateral is asked against managerial misconduct or none was taken in, the transaction will be recorded as equity partnership with no collateral. Thus, treatment of Basel II in terms of collaterals should be applied to

¹⁰ Source: BankScope Database, Bureau van Dijk, release 165.2, update April 2004.

equity participations and consider assets of the equity as either as a deduction from the risk or as a collateral for the outstanding risk.

Treatment of derivative products is also expanded to include more products. Although there are no Islamic financial instruments defined as derivative products for Basel II purposes, parallel *salam* may be used to hedge against risks arising from *salam* contracts. Parallel *salam* contract may not be a derivative product but the application of *salam* is very much in line with the intent of derivatives. In terms of credit definitions, however, Basel II will treat the two *salam* transactions as two separate deals and double the risk. Whereas, if parallel *salam* is to be included within the Basel II expanded derivative treatment, banks would match two contracts and deduct the amount of parallel *salam* from the original *salam* contract. Resulting reduced risk exposure similar to credit derivatives that conventional banks utilize to hedge their credit risk.

Range of guarantors as collateral is expanded to include certain companies with acceptable level of external credit rating. Islamic banks will benefit from such expansion in terms of credits extended to real economy. As long as Islamic banks do not include fixed income securities to their credit portfolio, their percentage of loans within total assets should reflect such tendency. Table 4-2 shows such tendency and compares the loan ratios between Islamic banks and conventional banks.

Table 4.2: Ratios for Islamic banks and conventional banks as an average of years between 1999 and 2002.¹¹

	Islamic Banks	Conventional Banks
Number of Banks	64	347
Net Loans / Cust & ST Funding	78.37	60.11
Net Loans / Tot Dep & Bor	69.51	58.04
Net Loans / Total Assets	54.15	44.45

In case of credit exposures that cannot be classified into defined categories or no external rating is available for a given category, banks are to use 100 percent as the risk weight. Islamic banks with unique credit transactions and unique risk exposures may have to face with such enforcement. While the only credit instrument with available international rating is *ṣukūk*, many Islamic credit instruments will be categorized under standardized risk categories for external rating. However, for products, such as *istiṣnāʿ*, *salam*, *muḍārabah* and

¹¹ Source: BankScope Database, Bureau van Dijk, release 165.2, update April 2004.

mushārakah, external rating may become troublesome. Standardized approach will pose a disadvantage to Islamic banks in such an aspect.

For any risk exposure that is past due bears a risk weight of 150 percent. Conventional banks may pass the cost of increased capital requirement to credit customers with increased interest while restructuring or recollecting the loan. However, such treatment increases the cost of delayed payments to Islamic banks. Without financial compensation from credit customers, such risk will be added to the profit mark-up at the initial stage of the credits depending on the recollection statistics. Such treatment has disadvantages for Islamic banks.

Special risk treatment for retail exposures is included within the standardized approach. The risk weights are reduced for most of the retail exposures. Credits extended to small and medium enterprises that meet required criteria are included within this special treatment. Islamic banks will benefit from reduced risk weights. Table 4-2 shows the loan ratios of Islamic banks. The types of Islamic financial instruments make it possible for Islamic banks to work with small and medium enterprises extensively. Some of the Islamic financial instruments are especially designed for this purpose including *istiṣnāʿ*, *salam* and *muḍārabah*. Any special treatment in terms of reduced risk weights will benefit Islamic banks in two ways. First, it will allow Islamic banks to offer better conditions to customers. Second, Islamic banks will be encouraged more to work with small and medium enterprises and utilizing more of related products. This may result in product shift from dominant *murābahah* transactions within the credit portfolio to more equity related products. Such treatment of Basel II will provide advantages for Islamic banks.

4.2 Internal Ratings-Based Approach¹²

Banks internal risk measurement system is utilized for measuring credit risk. Risk weights and capital charges are generated by the banks with the guidance of the Basel II and the regulatory body. The risk weigh calculations are derived from risk management techniques. Internal ratings-based (IRB) approach uses four quantitative data. Probability of default (PD) is the probability that a borrower will default within a time period. Loss given default (LGD) is the percentage of the risk exposure that will be loss in case of default. Exposure at default (EAD) is the amount of risk exposure at the time of default. Maturity (M) is the days left for the risk exposure to end. Capital requirement for specific risk exposure will be a function of PD, LGD, EAD and M.

With the IRB approach banks are permitted to alter the risk weight formula for SME borrowers. Such an alternative will be especially useful for Islamic banks considering their relatively larger risk exposure of SMEs. The advanced risk weight formula will allow for true reflection of risk in terms of SME size and annual sales figures. The disadvantage of categorizing all SMEs into one single

¹² See _____ (2004)

category levels the differences between SMEs are overlooked. With the IRB system, such differences will be reflected directly on risk measurements and therefore in calculation of capital. Allowing the bank to distinguish the risk weight will also allow for true risk estimation in terms of risks associated with Islamic financial instruments. It has always been a problem to distinguish the differences in risks between SMEs financing by conventional banks and by Islamic banks. Risk weights that are based on past experiences of Islamic banks will enable for a better risk definition in terms of SMEs and related credit products.

IRB approach also provides extended coverage for risk mitigation techniques including collaterals and risk derivatives. Considering the absence of risk derivatives for Islamic banks, their treatment is not applicable, except to say that, conventional banks gain advantage over Islamic banks. On the other hand, considering the collaterals, extended treatment will benefit Islamic banks to great deal. Perhaps Islamic banks will benefit more than conventional banks, as long as different set of methods will be allowed by the supervisory bodies. It is very important to have the cooperation of regulatory bodies to develop set of risk measurement methods for Islamic banks that may prove to be much different than the methods for conventional banks. However, since the IRB approach includes many aspects within risk measurement to be conducted by banks themselves, the same should be applicable to Islamic banks as well. Past experiences of Islamic banks together with the direction of Islamic banking authorities such as AAOIFI, should provide necessary foundation to establish IRB approach for Islamic banks.

In terms of retail exposures, IRB approach includes an expanded treatment. These credits are categorized under three headings: 1) collateralized by residential mortgages, 2) qualifying revolving retail exposures and 3) other retail exposures. Different products of Islamic banks have different collateral structure. For instance, *murābahah* transaction may have residential mortgages that could be classified according to first classification. In terms of qualifying revolving retail exposures, Islamic banks cannot have revolving credits according to Sharī'ah. In fact, it is one of the problems that Islamic banks face. Although some credit restructuring may be permitted, and in fact encouraged if customers face payment problems, these should not be considered as revolving credits. Thus, Islamic banks do not have credits falling under the second category. The third category includes many credit types that are convenient for Islamic banks. For instance, project financing is categorized as specialized lending under other retail exposures. Islamic banks may list instruments under specialized lending including; *salam* and *istiṣnā'*. While classification of such risk is still troublesome, Islamic banks should take the lead to describe risks associated with such credit relationships and establish a risk weight foundation.

Equity participations are also handled differently under IRB approach. Islamic financial instruments such as *muḍārabah* and *mushārahah* benefit from such special treatment. There are two different methods described for handling equity

participations. First; banks can provide their own default probabilities for equity participations. Second; they can estimate the market value decrease of the equity participations. In either case, Islamic banks can take advantage of special treatment. In fact, IRB approach to equity participations may encourage Islamic banks to utilize more *muḍārabah* and *mushārah* transactions.

“IRB approach will require additional risk management resources compared to conventional banks.” (Hassan and Chowdhury, 2004). Also, in order to obtain supervisory approval to be able to apply the IRB approach, Islamic banks will have to overcome obstacles in terms of size and risk management (Hassan and Chowdhury, 2004).

4.3 Model-Based Approach

Credit risk is measured in terms of risk portfolios with utilization of specialized models. Through utilization of predefined risk models with computerized systems, banks aim to obtain standardized risk measurement procedures. Basel II aims to obtain comparable risk measurement techniques between banks. However, banks need necessary infrastructure and model descriptions for variety of risks. To generate a standardized risk measurement system, Islamic banks will also require extensive resources and enough experience in various types of risks to draw upon. Although, a standardized Islamic banking risk measurement model would be a great achievement, priorities of the system requires standardized products, procedures and accounting principles that show many differences between Islamic banks around the world.

4.4 Securitization

Basel II provides an extended treatment for securitizing risks. Securitizing banks' assets is a device for reducing banks' risk exposures and banks gather their income-earning assets and sell them to other investors including other banks (Khan and Ahmed, 2001). Within Basel II, securitization is treated as an important aspect to diversify and lower risk exposure. Supervisory risk weights are assigned to securitization positions to calculate the risk increased either assumed by participating into or reduced by selling to others.

The concept of securitization is very important for Islamic banks. The structure of a securitized credit portfolio would have participants purchasing part of the risk. Each portfolio would contain similar risks and assets attached to it. The decreased value of assets would have to be accounted for in terms of risk measurement. The underlying principal for Basel II to extend a special treatment for securitization is to distribute the risk exposure to other investors and lower the risk levied on the bank. Considering the very nature of profit and loss accounts that participates to credit and market risk of assets directly, such accounts may be considered as securitization in terms of Basel II credit risk exposure. The characteristics of Islamic investment deposits require account holders to receive profits and accept

losses. Therefore, any assets pools that is generated by the deposits collected through investment account, act as risk diversification process. In case of losses or diminished assets values, the loss is directly passed on to the investment account holder.

Securitization of investment pools through profit and loss investment accounts only eliminates credit risk but many other risks that were discussed earlier still remains for Islamic banks. It is to suggest that the nature of profit and loss accounts is unique and Basel II Favours such a system through treatment of risk. Measurement of risk exposed to Islamic banks calls for research in terms of type of securitization that profit and loss accounts provide. A system where amount and maturity of equity investments equal to amount and maturity of investment deposits match should be compared to conventional banking system in terms of risk, profitability and utilization.

The Basel II treats intermediate term preferred stock, subordinated debt and hybrid capital instruments in tier two capital. Considering the fact that PLS accounts have higher degree of risk sharing and risk absorption, PLS accounts should be considered as tier two capital.

4.5 Transparency

Transparency is the “public disclosure of reliable and timely information that enables users of that information to make an accurate assessment of a bank’s financial condition and performance, business activities, risk profile and risk management Practises” (Karim et. al, 2003). Through market discipline banks’ incentive to take excessive risk is lowered (Hassan and Chowdhury, 2004). The concept of transparency is one of the key points for establishing market discipline.

*Table 4.3: Data availability for Islamic and conventional banks for years between 1999 and 2003.*¹³

	Percent Listed	Data Availability of Not – Listed Banks	Data Availability of Listed Banks
Islamic Banks	39.06%	40.39%	45.08%
Conventional Banks	48.99%	52.08%	63.42%

The table presents the percentage of data available about Islamic and conventional banks for a time period of five consecutive years ending with 2003.

¹³ Source: BankScope Database, Bureau van Dijk, release 165.2, update April 2004.

The date is also separated in terms of being listed at a stock exchange or not. Countries included within the calculation are the 19 countries where Islamic banks are operative.

It can be observed from the table that Islamic banks are less transparent in terms of financial data compared to conventional banks. Also, listed banks are more transparent compared to non-listed banks. As a result, non-listed Islamic banks are the least transparent. The number of listed Islamic banks is 25 (39.06%) and the number of not-listed Islamic banks is 39 (60.94%). As a result, non-listed Islamic banks that consist of the majority of Islamic banks (60.94%) are the least transparent.

“The issue of transparency is relevant for Islamic banks. It is even more important to disclose accurate financial results, since Islamic banking is based on profit and loss sharing and thus financial results are very essential. Investors and shareholders should have access to all financial results that will promote openness and distribution of profits” (Bahrami, 2002).

“Higher financial participation and a higher quality of information will both improve the quality of the contracts entered into by the banks and their customers” (Muljawan, Dar and Hall, 2004).

5. Capital Adequacy for Islamic Banks

5.1 AAOIFI Approach

Muljawan et. al. Summarizes the AAOIFI approach with a few shortcomings and suggested improvements. According to AAOIFI (1999), capital of Islamic banks is exposed to three types of risks: commercial risk, fiduciary risk and displaced commercial risk. The risk of withdrawals by deposit holders in case of lower returns to investment accounts is described as displaced commercial risk. According to AAOIFI, PLS accounts should not be included in the risk bearing capital. All assets financed by the debt bearing liabilities and own capital should be included in the calculation of capital adequacy ratio. The weight of PLS accounts within the capital adequacy calculation should be 50 percent of total PLS. Therefore the formula for the capital adequacy ratio is given as follows: $CAR = OC / (WOC+L+WPLS * 50\%)$

Where, CAR is the capital adequacy ratio, WOE+L is the average risk weight of assets financed with the Islamic bank’s own capital and liabilities other than PLS accounts, WPLS is the average risk weight of PLS accounts. AAOIFI requires the CAR to be equal to 8 percent.

There are three shortcomings of the AAOIFI model according to Muljawan et. al. The model ignores the agency roles performed by Islamic banks. The definition of the restricted-investment deposits has inconsistency: AAOIFI accounting standards do not classify restricted PLS accounts as liabilities but such separation

between restricted and unrestricted PLS accounts is not included within the CAR calculation. The difference between PLS accounts and deposits with any potential claim (hybrid contracts) should be made by banks.

Separate capital adequacy standards may be applied for PLS accounts and current accounts in order to establish comparability (Khan and Ahmed, 2001, Chapra and Khan, 2000). Chapra and Khan (2000) suggest that AAOIFI formulated the CAR based upon accounting principles instead of systematic considerations. Application of 50 percent risk weight for PLS accounts generates an opportunity for capital arbitrage. They further suggest that PLS accounts are not permanent and the amount of PLS accounts may fluctuate depending on depositors' confidence and returns on PLS accounts. However, banks' own capital is permanent and would absorb shocks much efficiently compared to PLS accounts.

5.2 Improvements to Capital Adequacy Measurements

Muljawan et. al. Suggests that the amount of PLS accounts should not exceed the combined amount of equity capital and the mark-up amount of trade related credit instruments. They formulize that: $PLS \leq EC + \alpha MU$, where PLS is profit and loss sharing accounts, EC is equity capital, MU is the trade related instruments and α is the average rate of mark-up on trade related credit instruments.

It is also suggested by Muljawan et. al. That capital adequacy ratios should be calculated with a consideration to assets financed with debt-based liabilities and equity capital. They formulize that: $CAR = EC / RWAEC+DBC$ where EC is the equity capital and the RWAEC+DBC is the risk weighted assets financed by the equity capital and debt-based assets.

5.3 Other Suggestions for Capital Adequacy Ratio Calculations

Karim (1996) suggests four other methods for the calculation of capital adequacy ratio. The main difference between these four suggestions is the treatment of PLS accounts. According to Karim (1996), Islamic bank can choose from two methods to govern the relationship between shareholders and PLS account holders. These are called "pooling and separation" methods. PLS account holders participate to all types of revenues and expenses incurred by the Islamic bank for the pooling method. For the separation method, however, PLS account holders participate only to revenues and expenses incurred with their investments.

The first method suggests that PLS account should be added to the core capital if the Islamic bank applies pooling method as described above. The main reason for this treatment is the fact that with the pooling method, PLS accounts "absorb any operating losses" and "enable the bank to absorb risks and sustain shocks" just as core capital does. It is to be considered that although PLS accounts participate to overall revenues and expenses, the treatment of losses incurred with the investment of current accounts is a conflict. Also, PLS accounts may not be allowed to participate to overall risks of the Islamic banks by the regulatory authority since

such participation will bring shareholder privileges to PLS account holders. Application of this method would result in the following formula for CAR:

$$\text{CAR} = (\text{Equity capital} + \text{PLS accounts}) / \text{Risk weighted assets.}$$

The second method suggests that if Islamic bank chooses separation method, PLS account holders participate only to the risks arising from the investment of PLS accounts. Therefore, overall risks pertaining to the Islamic bank will not be shared by the PLS account holders. Separation of risk maintains that PLS account holders are different than shareholders. As a result of such separation PLS accounts cannot be treated as core capital. However, as long as PLS accounts absorb risks that are due to investing PLS account funds, they do not pose any risk to the Islamic banks and therefore should not be included within the risk weighted assets. The formula for CAR according to CAR is as follows: $\text{CAR} = \text{Equity capital} / (\text{Risk weighted assets} - \text{PLS accounts})$.

The third method is a derivation of the first method and suggests that "...although PLS accounts share in the profit and losses of the bank, they are not a perfect substitute to equity capital which is permanently available" (Karim, 1996). In theory, PLS accounts participate to the investments directly and cannot withdraw their funds until the investments are liquidated and profits and losses are realized. This is because of the fact that until liquidation, Islamic bank will not know the amount of profit or loss to distribute. In case of losses, any withdrawal without distribution of loss will not be fair to others that stayed and realized the loss. However, Islamic banks usually maintain some sort of profit levelling strategy which allows Islamic banks to Honour withdrawals. Any lack of payment may have consequences to the Islamic banks in terms of withdrawal runs, incomparable liquidity service for customers versus conventional banks and hardship in collecting funds to PLS accounts. Therefore, in Practice such funds enjoy liquidity and withdrawal rights before maturities. It is suggested by the second method that PLS accounts should be treated as a tier two capital. However according to Basel, tier two capital cannot exceed 50% of bank's capital. The CAR formula for the third method is as follows: $\text{CAR} = (\text{Equity capital} + \text{PLS accounts}_1) / \text{Risk weighted assets}$. Where PLS accounts₁ represents the amount of PLS accounts that can be considered tier two capital without exceeding Basel limitation of 50% ratio to tier one capital base.

The fourth method suggests a treatment of PLS accounts as normal time deposits of conventional banks without considering the fact that PLS accounts participate to investment risks of their funds to some degree. While the degree of participation is not certain, it should be accepted that there is participation and it should be deducted from risk weighted assets. The amount and types of risks shared by the PLS accounts can be calculated more efficiently under the new Basel capital accord that are more open to employing bank specific experience.

5.4 Liquidity Risk and Capital Adequacy

It is imperative for Islamic banks to recognize the importance of the liquidity risk. While credit risk, market risk and commercial risk play very important roles in the financial sustainability of the Islamic banking, liquidity risk can be hazardous if enough attention is not paid.

Capital adequacy ratio calculation should include all deposits that can be withdrawn before the maturity dates. Restricted PLS accounts may not expose Islamic banks to credit or market risks but they very much expose liquidity risk. Conventional banks also face the same liquidity risk but with a much lower exposure. According to IAS30, marketable securities are classified under liquid assets. Although conventional banks may liquidate such assets with considerable ease, during times of systematic financial shocks, selling such items will not be possible due to illiquid financial markets. Also, conventional banks trade marketable securities with transactions where almost no transaction takes place simultaneously. Therefore, conventional banks require credit lines established for trade partners. The sizes of such contingent liabilities are also included within the banks' overall risk expose, setting limits to trade volume. The liquidity of such marketable securities depends highly on market conditions and available credit lines for trading such securities. The liquidity risk exposed to Islamic banks is higher, considering the inexistence of marketable securities within the asset portfolio. Such risk should be included with the minimum required capital which liquidity position will be drawn upon.

6. Conclusion

Since last thirty years, banking system also includes Islamic banks. The interaction between the conventional systems and the Islamic system requires adaptations on both sides. Islamic banks, holding about 12 percent of the assets with the banking systems that they co-exist with conventional banks, have to adapt more to the conventional banking regulations. In some cases, Islamic banks have to alter their procedures and structures. In terms of financial stability and international acceptance, Islamic banks had to comply with the regulations set forth by Basel and now with Basel II.

Islamic banks operate with many products that do not exist in conventional banking. These unique products bring many risks that require unique risk measurement and capital adequacy measure. In terms of expanded treatment of different risks, collaterals and securitization, Basel II offers more flexibility for Islamic banks than the old accord. Although there are still shortcomings for Islamic banking, Basel II permits enough room for adaptation of Islamic products.

Regulatory agencies are responsible for imposing Basel II in their jurisdictions. Their understanding of Islamic banking and its potential for their economies will

bring cooperation that Islamic banks need to establish a well structured and stabilized banking system which is very much different than conventional banks.

Considering different approaches for credit evaluation and risk measuring for the banking system, Basel II aims to establish financial stability and to level the playing field. Application of these approaches has its own challenges. In terms of lowering the risk that Islamic banks pose on financial systems and on the Islamic banking per se, adopting Basel II and coping with capital adequacy measures is vital for Islamic banks.

In terms of calculating capital adequacy ratio for Islamic banks in line with Basel II, risk weighted assets should include those financed with equity capital and current assets. The treatment of PLS accounts is the Centre of discussion. While PLS accounts can be considered tier two capital, they can also be considered as securitization for equity based credit instruments. However, the fact that PLS accounts are not permanent and they pose liquidity risks to Islamic banks, they have to be included within the capital adequacy ratio equation, but with a limited weight.

Appendix I

Averages of Selected Financial Figures for Islamic Banks and Conventional Banks Compared

The table below contains selected average financial figures for years of 1999, 2000, 2001 and 2002 for Islamic banks and for conventional banks for comparison purposes. Average figures are calculated for each country and for overall as an average of all available figures for that country. An average of all years is also calculated for each country and overall. Source: BankScope Database, Bureau van Dijk, release 165.2, update April 2004.

Totals of selected financial figures for Islamic banks and conventional banks compared

The table below contains totals of selected financial figures for years of 1999, 2000, 2001 and 2002 for Islamic banks and conventional banks for comparison purposes. Source: BankScope Database, Bureau van Dijk, release 165.2, update April 2004.

Country Name	Year	Total	Total	Total	% of Market	% of Market	ALGERIA	ALGERIA	BAHAMAS	BAHAMAS	BAHRAIN	BAHRAIN	BANGLADESH	BANGLADESH	BRUNEI DARUSSALAM	BRUNEI DARUSSALAM
Number of Banks		411	64	347	15.57%	84.43%	1	7	1	18	7	14	3	33	2	1
			Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
Loans	2002	505,383,319	58,564,690	446,818,629	11.59%	88.41%	133,298	180,630		6,496,900	949,002	24,205,695	833,860	9,057,219	873,193	482,465
Loans	2001	497,806,526	69,300,868	428,305,658	13.93%	86.07%	153,213	12,284,982		6,182,147	1,131,049	23,003,287	785,049	10,335,775	1,050,189	390,492
Loans	2000	495,145,789	116,638,461	378,507,308	23.56%	76.44%	113,840	12,810,788		2,594,630	1,118,453	23,285,287	658,304	9,089,165	1,143,691	381,865
Loans	1999	449,567,899	96,120,001	353,447,898	21.38%	78.62%	117,335	13,368,169		1,869,288	941,085	22,063,117	524,951	8,399,863	927,431	400,840
Fixed Assets	2002	19,715,333	2,773,090	16,942,243	14.07%	85.93%	6,560	20,043	43,200	32,568	32,296	621,831	30,459	104,250	11,805	6,623
Fixed Assets	2001	19,720,728	3,510,021	16,210,705	17.80%	82.20%	7,582	406,577	15,500	27,417	32,430	650,757	31,490	137,510	11,939	4,160
Fixed Assets	2000	17,847,920	6,756,194	11,089,726	37.87%	62.13%	5,840	178,181	39,900	20,971	38,953	723,229	23,141	113,743	14,553	3,350
Fixed Assets	1999	16,939,848	5,861,634	11,078,214	34.60%	65.40%	4,501	157,201	40,900	5,850	28,979	755,313	10,672	109,365	17,527	3,241
Total Assets	2002	1,126,895,543	132,135,866	994,559,677	11.73%	88.27%	322,666	432,869	1,336,300	16,024,779	2,357,097	59,656,851	1,187,394	15,325,563	1,156,579	938,958
Total Assets	2001	1,114,831,294	149,229,165	965,402,129	13.39%	86.61%	245,504	24,065,449	1,064,400	16,822,157	2,523,511	59,726,659	1,142,299	17,596,217	1,773,636	742,410
Total Assets	2000	1,095,932,093	223,272,903	872,659,190	20.37%	79.63%	200,550	22,148,715	1,132,400	11,152,430	2,335,855	58,232,442	920,867	15,512,017	1,720,242	562,518
Total Assets	1999	993,367,109	177,700,412	815,666,697	17.89%	82.11%	170,484	24,441,308	1,233,300	9,006,802	2,044,657	55,976,191	779,771	14,210,092	1,153,961	471,789
Customer & Short Term Funding	2002	934,003,534	113,246,918	820,756,616	12.12%	87.88%	171,493	251,919	641,400	12,789,120	1,472,056	47,867,928	1,006,984	12,680,886	989,980	872,329
Customer & Short Term Funding	2001	921,927,397	124,025,964	797,901,433	13.45%	86.55%	122,424	19,374,831	275,400	13,767,641	1,724,396	46,168,981	998,525	14,625,889	1,434,792	684,495
Customer & Short Term Funding	2000	873,399,971	167,403,328	705,996,643	19.17%	80.83%	92,736	18,059,725	256,000	8,995,977	1,548,877	45,849,966	787,489	12,853,209	1,369,044	503,725
Customer & Short Term Funding	1999	802,895,458	125,042,571	677,852,887	15.58%	84.42%	77,906	20,111,144	311,900	6,313,007	1,486,928	44,730,082	662,847	11,589,586	803,661	414,226
Equity	2002	108,358,733	11,194,457	96,164,276	10.53%	89.47%	24,610	77,483	398,800	2,708,774	714,281	4,878,030	64,029	537,087	92,485	41,290
Equity	2001	97,029,410	10,664,704	86,364,706	10.99%	89.01%	23,554	1,242,970	351,000	2,423,942	650,443	6,276,674	40,100	556,358	257,158	38,250
Equity	2000	88,103,263	13,286,790	74,816,473	15.08%	84.92%	20,427	1,132,134	333,200	1,580,336	613,770	6,036,277	32,226	464,428	258,735	40,023
Equity	1999	70,147,503	9,027,731	61,119,772	12.87%	87.13%	19,275	969,543	345,100	1,466,627	463,528	5,920,433	15,777	412,642	258,224	40,996
Net Income	2002	15,558,891	2,300,606	13,258,085	14.79%	85.21%	3,638	2,863	12,400	188,270	70,336	252,984	11,099	97,385	10,769	1,900
Net Income	2001	4,075,413	1,542,070	2,533,343	37.84%	62.16%	1,619	29,794	18,600	373,366	66,961	421,342	8,698	89,124	15,073	2,107
Net Income	2000	11,589,934	2,209,955	9,379,979	19.07%	80.93%	1,619	38,044	-3,200	524,213	50,572	475,546	5,589	55,413	14,901	1,675
Net Income	1999	-1,051,917	1,078,110	-2,130,027			2,929	43,131	17,400	579,214	28,167	558,521	3,398	29,180	14,826	2,761

Basel II and Capital Requirements for Islamic Banks

Country Name	Year	EGYPT		INDONESIA		IRAN	JORDAN		KUWAIT		MALAYSIA		PAKISTAN		QATAR	
		# of Banks														
		2	32	1	51	12	2	15	1	14	2	48	3	30	2	6
		Islamic	Conventional	Islamic	Conventional	Islamic	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
Loans	2002	2,012,688	43,089,985	193,937	29,157,116	582,178	703,388	20,194,510	4,652,508	22,717,488	3,413,158	138,920,837	3,294,840	9,275,880	1,806,868	7,724,898
Loans	2001	1,855,924	44,935,774	114,125	20,863,489	27,220,908	657,123	20,482,104	4,015,977	18,565,499	2,855,858	136,230,623	2,781,681	8,577,398	1,628,737	7,288,930
Loans	2000	2,236,775	47,974,979	88,379	17,930,797	89,898,771	601,975	19,812,417	3,786,285	18,379,783	2,211,783	108,363,526	3,023,180	7,298,134	1,446,089	5,541,044
Loans	1999	2,125,814	44,783,717	48,342	17,244,377	71,008,308	599,013	19,299,322	3,586,218	18,896,281	1,901,858	98,173,528	3,086,156	6,788,672	1,302,033	5,725,330
Fixed Assets	2002	81,934	824,434	2,405	1,585,780	49,288	25,388	657,985	82,824	523,840	92,474	2,027,784	157,565	405,858	25,082	86,374
Fixed Assets	2001	74,885	820,542	2,029	1,257,212	1,509,738	28,208	837,411	95,533	512,977	93,974	2,142,557	96,640	320,251	28,791	78,351
Fixed Assets	2000	71,247	861,408	2,408	1,055,811	5,745,580	29,198	808,025	89,889	615,825	102,342	1,704,980	102,912	278,030	19,588	65,577
Fixed Assets	1999	77,140	871,837	2,724	1,380,871	5,028,513	29,901	544,168	72,954	702,489	85,711	1,868,158	118,984	295,454	15,522	62,391
Total Assets	2002	3,062,688	86,591,054	239,228	97,812,421	1,143,431	1,585,051	53,785,222	8,530,875	57,059,282	7,405,821	221,745,285	7,642,156	23,896,989	2,200,365	13,239,945
Total Assets	2001	2,736,108	86,334,332	150,423	84,835,378	48,184,892	1,875,036	53,444,620	7,745,354	49,492,085	6,013,605	214,192,850	5,517,281	18,981,485	1,954,871	11,955,495
Total Assets	2000	3,239,024	86,838,317	117,457	84,888,029	172,102,848	1,481,382	50,584,228	6,630,442	58,935,042	4,896,421	180,089,130	5,688,148	15,398,478	1,891,483	10,467,005
Total Assets	1999	3,098,082	82,158,838	97,855	91,310,737	133,153,994	1,372,358	45,982,297	5,812,685	57,143,343	3,881,079	163,454,501	5,693,978	15,350,040	1,599,836	9,608,433
Short Term Funding	2002	2,860,777	78,401,165	182,293	79,205,852	633,485	1,399,579	45,947,217	6,644,291	44,448,389	6,248,343	182,039,342	6,853,387	20,713,098	1,893,544	10,908,243
Short Term Funding	2001	2,510,579	75,484,954	115,192	67,523,147	38,171,255	1,448,519	45,853,602	6,055,103	38,866,696	4,871,790	175,817,144	5,052,665	16,715,458	1,625,742	9,847,748
Short Term Funding	2000	2,933,821	75,099,925	88,014	61,377,725	127,015,047	1,280,931	43,528,082	5,089,034	34,877,371	3,979,553	150,979,577	5,129,508	13,475,187	1,384,918	8,502,471
Short Term Funding	1999	2,763,030	70,408,493	74,538	75,585,104	91,242,248	1,169,111	37,436,871	4,405,521	48,111,738	3,070,895	138,030,708	5,480,305	13,389,052	1,326,538	7,853,571
Equity	2002	120,468	4,751,924	19,497	8,095,842	328,340	142,032	5,250,378	830,578	7,270,850	1,004,211	19,731,797	317,851	823,368	168,874	1,727,197
Equity	2001	111,448	4,857,868	14,835	5,331,922	2,722,878	139,774	4,882,559	741,115	6,910,895	918,283	17,998,835	179,229	684,114	142,363	1,604,644
Equity	2000	141,436	5,215,888	11,350	5,838,431	7,175,565	137,800	4,448,421	679,869	6,808,287	785,421	15,380,781	168,088	648,552	131,849	1,474,340
Equity	1999	128,180	5,178,429	14,312	-3,445,882	3,718,014	133,427	4,018,618	604,009	6,791,898	720,388	13,582,868	87,281	675,139	122,198	1,502,830
Net Income	2002	3,844	370,557	2,595	1,313,399	41,750	2,539	489,479	188,692	1,003,704	19,394	2,182,184	51,242	-10,470	42,472	285,329
Net Income	2001	11,359	528,290	4,163	743,688	337,120	5,841	518,301	171,829	940,533	13,237	1,340,250	17,389	-48,344	30,412	203,984
Net Income	2000	12,710	888,169	750	573,056	1,294,439	7,475	460,987	180,085	901,552	19,283	2,028,893	10,937	37,598	20,860	142,528
Net Income	1999	10,817	783,342	381	-8,282,562	472,050	4,655	417,560	150,181	812,877	36,579	1,343,658	-170,894	70,892	23,819	183,406

Country Name	Year	SAUDI ARABIA	SAUDI ARABIA	SUDAN	TUNISIA	TUNISIA	TURKEY	TURKEY	UNITED ARAB EMIRATES	UNITED ARAB EMIRATES	YEMEN	YEMEN
# of Banks		1	10	13	1	19	5	22	3	21	2	6
		Islamic	Conventional	Islamic	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
Loans	2002	5,785,020	49,231,703	24,881,189		12,731,913	1,647,300	41,813,927	6,624,752	31,589,243	177,514	168,622
Loans	2001	5,797,917	43,697,657	12,545,080	48,300	11,142,574	1,077,876	37,276,726	5,462,518	26,882,126	139,566	156,077
Loans	2000	4,889,105	41,947,102	365,878	57,200	10,365,716	919,389	29,376,741	4,209,504	25,236,814	121,890	120,560
Loans	1999	5,556,689	40,456,936	103,140	72,100	8,984,782	976,382	22,155,894	3,177,427	24,730,049	75,921	129,753
Fixed Assets	2002	291,055	1,820,984	1,599,212		338,360	188,110	7,548,209	50,375	627,639	3,060	29,860
Fixed Assets	2001	274,553	1,909,288	1,072,003	4,300	295,109	95,639	6,729,290	31,178	557,143	3,640	24,153
Fixed Assets	2000	255,194	1,984,733	72,752	4,100	289,888	105,898	2,358,156	31,205	504,778	3,716	25,561
Fixed Assets	1999	232,016	2,021,089	25,596	4,400	296,672	25,086	2,005,984	39,836	495,193	2,692	25,118
Total Assets	2002	15,860,748	119,051,298	66,993,529		17,322,555	2,601,341	153,147,812	8,151,015	57,957,468	339,461	770,346
Total Assets	2001	13,816,208	111,282,010	45,955,750	175,400	15,841,655	1,871,212	147,101,137	6,397,250	52,514,581	273,624	671,521
Total Assets	2000	12,998,771	108,937,656	1,577,739	178,100	14,903,663	1,270,074	104,093,498	4,893,696	49,362,018	197,606	574,004
Total Assets	1999	11,449,880	100,651,229	735,986	167,300	13,306,937	1,230,884	86,976,735	3,691,164	45,125,252	135,180	492,175
Short Term Funding	2002	12,399,093	101,721,831	60,422,184		12,364,170	2,247,862	125,432,830	6,862,192	46,412,801	307,975	699,496
Short Term Funding	2001	10,847,958	95,796,334	41,506,175	106,300	11,656,655	1,659,563	122,880,534	5,263,118	42,233,740	236,468	603,584
Short Term Funding	2000	10,022,991	94,460,825	1,172,717	110,000	10,903,519	1,138,489	86,233,622	3,859,142	39,775,574	167,017	520,163
Short Term Funding	1999	8,960,320	87,711,439	332,457	101,300	9,998,478	1,108,874	71,026,635	1,555,398	36,402,178	108,798	440,605
Equity	2002	1,825,821	11,798,705	3,968,509		1,802,965	245,058	17,202,903	910,088	8,413,261	20,927	52,624
Equity	2001	1,794,446	10,677,144	1,548,192	57,100	1,618,394	140,142	13,450,855	806,835	7,759,946	26,029	51,538
Equity	2000	1,729,453	9,847,633	168,972	56,800	1,583,344	86,867	7,374,059	751,068	7,125,202	24,094	42,579
Equity	1999	1,519,199	9,065,921	28,363	56,800	1,461,735	64,699	6,740,254	711,313	6,699,007	17,676	40,914
Net Income	2002	377,356	2,504,080	1,366,631		124,333	4,235	3,318,610	87,079	1,149,000	4,535	4,508
Net Income	2001	401,469	2,318,027	384,642	3,000	180,060	-36,677	-6,114,736	84,085	1,001,470	3,430	4,087
Net Income	2000	494,606	1,929,428	26,973	2,800	183,060	13,146	448,993	73,493	890,184	3,157	2,640
Net Income	1999	400,908	-337,118	4,458	2,500	160,813	15,578	687,882	57,045	823,526	3,293	3,090

References

- Ahmed J. (2003), "Handbook of Corporate Governance", State Bank of Pakistan, Karachi, Pakistan.
- Bahrami, M (2002), "Risk Management in Compliance with the New Basel Accord", Paper presented in the 2002 World Islamic Banking Conference, November 2-3, Bahrain.
- Chapra M. U. (2000), "Why has Islam Prohibited Interest? Rationale behind the Prohibition of Interest.", *Review of Islamic Economics*, No.9, 2000, pp.5-20
- Chapra M. U. and Khan T. (2000), *Regulations and Supervision of Islamic Banks*, IRTI, Jeddah, Saudi Arabia.
- Hall M.J.B. (2003), "Basle II: Latest Developments and Implications for Bank Risk Management", International Conference on Islamic Banking: Risk Management, Regulation and Supervision, September 30-October 2, 2003, Jakarta, Indonesia.
- Hassan M.K. (2003), "Cost, Profit and X-Efficiency of Islamic Banks in Pakistan, Iran and Sudan", International Seminar on Islamic Banking: Risk Management, Regulation and Supervision, on September 30-October 2, 2003, Jakarta, Indonesia.
- Hassan M.K., Chowdhury M.A.M. (2004), "Islamic Banking Regulations in Light of Basel II", Department of Economics and Finance, University of New Orleans, May 2004.
- Hassan, M. K. (2003). "Var Analysis of Islamic Banks," Paper Presented in an International Conference on Islamic Banking: Risk Management, Regulation and Supervision "Towards an International Regulatory Convergence" on September 30-October 2, 2003, Jakarta, Indonesia.
- Hassan, M. K. (2004), "Basel II and banking regulation" Lecture Notes, University of New Orleans, New Orleans, USA.
- Karim, R.A.A. (1996), "The Impact of the Basle Capital Adequacy Ratio Regulation on the Financial and Marketing Strategies of Islamic Banks.", *International Journal of Bank Marketing*, Vol. 14, No. 7, pp. 32-44
- Karim, R.A.A. (2001), "International Accounting Harmonization, Banking Regulation and Islamic Banks", *The International Journal of Accounting*, Vol. 36, Issue 2, pp. 169-193
- Khan T. and Ahmed H. (2001), "Risk Management: An Analysis of Issues in Islamic Financial Industry", IRTI Occasional Paper, Jeddah

MSA-USC Hadith database, Sahih Bukhari, Vol.3, Book 35, No.455, Narrated Ibn Abbas, <http://www.usc.edu/dept/MSA/reference/searchhadith.html>

MSA-USC Hadith database, Sunan Abu Dawud, Book 23, No.3461, Narrated Abu Said Khudri, <http://www.usc.edu/dept/MSA/reference/searchhadith.html>

Muljawan D., Dar H.A., Hall M.J.B. (2004), "A Capital Adequacy Framework for Islamic Banks: The Need to Reconcile Depositors' Risk Aversion With Managers' Risk Taking", *Applied Financial Economics*, vol. 14, no. 6, pp. 429-441

Zaher, Tarek and Hassan M.K. (2001), "A Comparative Literature Survey of Islamic Finance and Banking," *Financial Markets, Institutions and Instruments*, Volume 10, Number 4, 2001: 155-199.