

**THE ISLAMIC BANKING MODEL:  
A PROSPECTIVE CHANNEL FOR DEVELOPMENT IN EGYPT?**

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Working Paper No. 171  
August 2012

**JEL classification: G21, O16, P51**

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The author is grateful to Magda Kandil, El-Morsy Hegazy and Adel Yaaqoub for constructive comments. The author is also indebted to Mostafa Ghannam, Amr El-Shawarby and Mohamed Ali for excellent research assistance.

## 1. INTRODUCTION

The relation between financial intermediation and economic growth is well-established in the literature. Theoretical and empirical research has shown that a sound and efficient financial system is necessary for growth (see for example Beck, Levine and Loayza 1999). In Egypt, Dobronogov and Iqbal (2005), in line with the international literature, find that the ratio of private credit to GDP positively and strongly affects economic growth during the period 1986-2003. They find that periods that witnessed high economic growth in Egypt were characterized by high private credit-to-GDP ratio and vice versa.

Several waves of reforms during the last couple of decades have enhanced Egyptian banking performance indicators such as increased bank solvency and capitalization and lower non-performing loans. However, stylized facts show that financial intermediation has not improved much, reflecting the fact that banks in Egypt do not efficiently play their role as catalysts for economic development (Nasr 2009). The loan-to deposit ratio and private credit to GDP ratio are still low by regional and international standards. The contribution of banks towards financing Egyptian enterprises is tiny, especially for SMEs, which contribute with 80 percent to both GDP and employment (CAPMAS, 2006). Moreover, much of the credit provided by banks goes to financing the budget deficit, which crowds out private investment.

The present paper explores the viability of the interest-free Islamic banking model as a new approach to strengthen the currently weak intermediary role of the Egyptian banking sector. This relatively new banking model, based on profit and loss sharing, prohibiting excessive speculation and tying transactions to the real economy is gaining increasing interest worldwide and regionally. The industry's growth rates averaging 20-30 percent per annum, its relative resilience during the first stage of the 2008 global crisis (IDB 2010) and the increasing demand have induced many countries, both Islamic and non-Islamic, to introduce Islamic banking products.

The target of the paper is three-fold. First, it develops a rigorous theoretical model for the investment decision process between the saver, the bank and the investor in the conventional and the Islamic systems, which explores the potential of the profit-and-loss sharing model to increase investment relative to the conventional model. Second, the paper tests empirically the effect of applying the Islamic system on indicators of financial intermediation in a panel of 616 conventional and Islamic banks from 19 developing countries

in the period 1996-2010. Results of the theoretical model show that the Islamic banking system, under profit and loss sharing, has the potential for a better allocation of resources and a higher level of investment relative to the conventional system. Empirical results show that applying Islamic banking enhances financial intermediation according to the different indicators.

However, evidence shows that in practice, profit and loss sharing modes of finance represent a marginal share of Islamic banks' assets. Many challenges have induced Islamic banks to rely on debt-like tools, which has reduced their ability to affect investment. The third target of the paper is therefore to identify the challenges that face this new banking model, with a focus on Egypt, and provide means to address them in light of international experience.

The paper is divided into five sections in addition to the Introduction. Section 2 presents the financial intermediation problem in Egypt. Section 3 introduces basic Islamic banking concepts. Section 4 develops the theoretical model of investment decision process under Islamic and conventional banking. Section 5 conducts the empirical analysis of the effect of Islamic banking on financial intermediation indicators and presents the problem of the structure of financing in Islamic banks as well as the Indonesian success story. Finally, section 6 provides a policy framework to benefit from Islamic banking in Egypt, in light of the different challenges facing this industry and lessons learnt from the Indonesian experience.

## **2. FINANCIAL INTERMEDIATION IN THE EGYPTIAN BANKING SYSTEM**

Many reforms have taken place in the Egyptian banking system in the last couple of decades. Including consolidation of the banking sector, divestiture of State-owned banks' shares in joint-venture banks and restructuring of State-owned banks (World Bank, 2008a), the reforms aimed at creating a favorable environment for a sound financial system that achieves Egypt's development objectives. Including recent sets since 2004 and their predecessors in the 1990's, the reforms have had several aspects: higher banks solvency and capitalization as the CBE lowered the reserve and liquidity requirements;<sup>1</sup> better safety nets, less gambling and moral hazard as CBE increased the capital adequacy ratio to meet the Basel Committee standards;<sup>2</sup>

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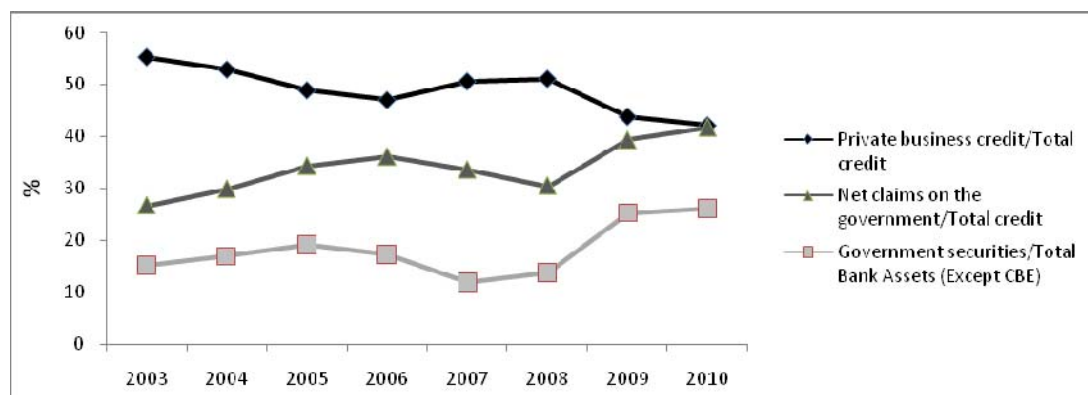
<sup>1</sup> The reserve requirement was lowered from 25 percent of EGP deposits to 15 percent in 1991, then to 14 percent in 2001, then to 12 percent in March 2012 and recently to 10 percent in May 2012. The liquidity requirement was lowered from 30 percent to 20 percent for local-currency balances.

<sup>2</sup> The ratio of paid-up capital to risk-weighted assets was raised from 8 percent to 10 percent.

less non-performing loans since 2006 as stricter loans provision policies are enforced<sup>3</sup>; as well as better accountability and financial soundness with the CBE running monthly on-site and off-site monitoring and supervision.

However, in terms of financial intermediation, the banking system has not witnessed significant improvements. Although bank deposits amount to more than 100 percent of GDP, a high ratio by international standards, the loan to deposit ratio has an average of 54 percent in the last three years, which is well below the world average of 86 percent in 2010, and below the MENA region average of 71 percent in 2009. The private credit-to-GDP ratio in Egypt has been declining over time and it reached a low of 36.1 percent in 2009, while the world average and the MENA average are 138.6 percent and 51.2 percent respectively (CBE and World Development Indicators). On the other hand, as illustrated in figure 1, banks' reliance on treasury bills and similar securities has increased over time. Direct lending to the government has also increased. Coupled with a decreasing ratio of private business credit to total credit, this indicates that there is a crowding-out of the private sector in favor of financing the fiscal deficit, as shown by the top two curves in figure 1.

**Figure 1. Credit to the Public and Private Sectors and Share of Government Securities to Total Bank Assets, 2003-2010**

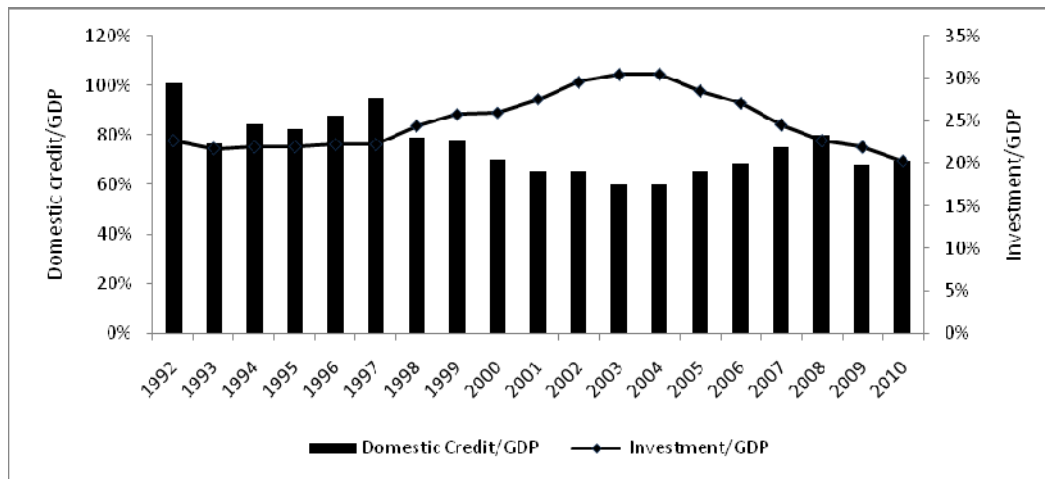


Source: Author's illustrations based on CBE monthly statistical bulletin, various issues.

This is confirmed by the absence of a positive relationship between bank credit and investment over the past two decades, as illustrated in figure (2). There is even a negative relationship as the correlation coefficient was -0.7.

<sup>3</sup> The ratio of non-performing loans to total gross loans went down from a high of 26.5 percent in 2005 to a low of 11 percent in 2010.

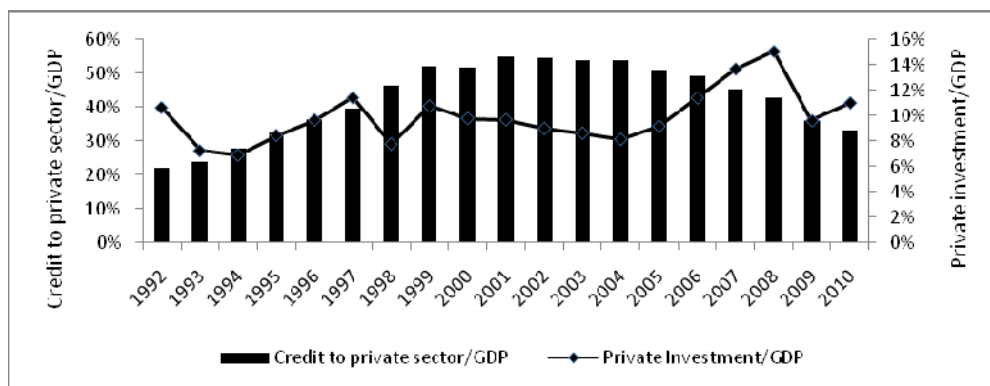
**Figure 2. Domestic Credit and Investment, as a Ratio to GDP, 1992-2010**



Source: Author's illustration based on CBE, various issues.

Similarly, there is a weak positive relationship between credit to the private sector and private investment, as illustrated in Figure (3). The correlation coefficient was 0.1.

**Figure 3. Credit to the Private Sector and Private Investment, as a Ratio to GDP, 1992-2010**



Source: Author's illustration based on Central Bank of Egypt Data.

The enterprise survey, conducted by the World Bank and published in 2008, emphasizes little reliance of Egypt firms on financial markets in financing their operations. As illustrated in table 1, the contribution of banking in financing investments of Egyptian enterprises is only 3.5 percent, whereas firms' reliance on internal funding is dominant (row 1). The share of banking finance is lower in Egypt than in the MENA region and lower middle income (LMI) countries, even though the required level of collateral for a loan (row 7) is in Egypt far below that in the MENA region and LMI countries. It is critical to note that the reliance on bank finance is even smaller in small firms. This attests to the frequent complaint that a major

hurdle to SME's growth is the difficulty of access to finance. Instead, SME's "rely heavily on the informal market or their own funding" (Nasr 2009), reflecting a huge unexploited potential for the banking sector to benefit from in order to enhance financial intermediation and stimulate investment.

Another indicator in the table is the percentage of working capital that is financed by external sources to the firm (row 6), which is low in Egypt relative to the MENA region and LMI countries. It is also the lowest in small firms, compared to large and medium firms.

**Table 1. Indicators of Financial Reliance for a Sample of Egyptian Firms (2007)**

		Unit	MENA	Lower middle income	EGYPT			
					Total Egypt	Small firms (1-19 employees)	Medium firms (20-99 employees)	Large firms (100+ employees)
1	Internal finance for investment	(%)	74.8	68.1	<b>88.5</b>	90.6	89.9	84.4
2	Bank finance for investment	(%)	12.8	17	<b>3.5</b>	1.5	2.7	6.8
3	Trade credit financing for investment	(%)	3.2	3.9	<b>0.3</b>	0.2	0.2	0.7
4	Equity, sale of stock for investment	(%)	2	4.9	<b>2.5</b>	2.3	2.5	2.8
5	Other financing for investment	(%)	7.4	6.2	<b>5.1</b>	5.4	4.7	5.3
6	Working capital external financing	(%)	23	31	<b>12.2</b>	9.7	11.5	16
7	Value of collateral needed for a loan (% of the loan amount)	(%)	150.9	142	<b>85.5</b>	87.6	83.5	86
8	% of firms with bank loans/line of credit	(%)	29.4	33.9	<b>17.4</b>	5.1	13.8	36.1

Source: World Bank 2008b.

The ECES bi-annual business barometer, which reflects the views of 474 firms about the business environment, has placed "difficulty to obtain credit" as one of the top seven business constraints in all surveys from 2006 to date (ECES, various issues).

The central bank data show that there is high concentration of loans. In fact, 51 percent of credit extended to the private sector goes to 0.19 percent of the clients. Further, the average loan size for the remaining 49 percent of credit is as large as LE 544,850. Even when including loans of less than LE 30,000 the average loan is LE 159,906, which still reflects concentration of credit risk (World Bank 2008a) and exclusion of a large base of small enterprises from credit facilities.

The above evidence reveals the weak intermediation role that banks play in Egypt. This represents a constraint on economic development in Egypt. The need for investment, employment and growth urges us to seek innovative solutions.

### **3. ISLAMIC BANKING: A SNAPSHOT**

Islamic banking is a system of banking compliant with the principles of Sharia, the Islamic law. The first Islamic banking initiative was in Mit-Ghamr, Egypt, in 1963, but it only lasted for a few years before it was disrupted. The experience really took off with the establishment of Dubai Islamic Bank in 1975, and gained strong momentum since the mid 1980's.

Islamic banking is based on many principles, the most important of which is the prohibition of lending and borrowing with a pre-determined fixed return to the lender (Iqbal and Mirakhor 2007). Since bank deposits are loans from the depositors to the bank and bank loans are loans from the bank to the investors, having interest on them is illegal in Sharia. Sharing the gain without sharing the risks is regarded as inefficient and unstable; inefficient because it affects the system of incentives negatively, and unstable because there is always the threat of bank runs in case of losses.

As an alternative, Islamic Sharia proposes two types of financial instruments: debt-like instruments and equity-like instruments. Debt-like instruments resemble conventional modes of finance except in the core distinguishing feature that they are always asset-based. Indeed, Sharia systematically ties financial transactions to the real productive economy through the presence of a tangible asset or a usufruct in the transaction. Examples of debt-like instruments are the *murabaha* and the *ijarah* contracts. In the *murabaha* contract, the financier purchases the product and resells it to the entrepreneur who does not have enough capital, with a delay in payment and a mark-up for the financier. The *ijarah* contract is a leasing contract that is similar to *murabaha* but deals with the sale of usufruct from the financier to the entrepreneur rather than the sale of the asset.

Yet, equity-like instruments are the most important contribution of Islamic banking. In these instruments, the bank and the entrepreneur are partners who share profits and risks. Examples of these instruments are *mudaraba* and *musharaka*. In the *mudaraba* contract, the financier provides all the capital while the entrepreneur (called *mudarib*) has the abilities to perform the project. Profits are shared between them according to the agreement, while losses are borne solely by the financier, the entrepreneur having lost his time and efforts. The only

case the entrepreneur bears the losses is when these are the result of misconduct or negligence from the entrepreneur. The financier has the right to audit and supervise the entrepreneur and to impose general restrictions in the contract on his operations but not to participate in the management of the project. This gives sufficient freedom to the entrepreneur to work for the best of his project as he is the one who has the experience and know-how. On the other hand, in the musharaka contract, the two parties enter in an equity partnership, in which they share the capital. In musharaka, all parties have the right to participate in the management of the project. Profits are shared between them according to their capital shares or as agreed upon in the contract, but losses are shared according only to the capital shares.

Islamic banks customers' accounts are either current accounts or investment accounts. Current accounts are similar to those in conventional banks where the role of the bank is of pure custody. The bank is allowed to use the fund while it guarantees it with no return on it. This is a typical Sharia-compliant loan from the account holder to the bank. On the contrary, investment accounts are always mudaraba contracts between the account holders, as providers of funds, and the bank, as a mudarib. Since multiple-tier mudaraba is permitted in Sharia, the bank acts as a single mudarib for all investment account holders. Sharia allows the mudarib to invest the money directly or indirectly by engaging in any other form of contract with a third party. Therefore, the bank enters with investors who need capital in an array of different contracts that include mudaraba, musharaka, murabaha, ijarah, etc. The profits that the bank obtains from these operations are shared between the bank and the account holders by virtue of the initial mudaraba agreement, while losses are borne by the account holders.

The scope of investments that banks are allowed to undertake is within the limits of Sharia. They are not allowed to invest in goods or services prohibited by Sharia. Similarly, they are not allowed to invest in financial products that are not Sharia-compliant, such as conventional bonds (since they are loans with a fixed return to the lender) and derivatives (as they involve excessive uncertainty inherent in the contract). Conversely, Sharia encourages all forms of productive investments in industry, agriculture and services, while it discourages or prohibits all investments that are detached from the real side of economy.



#### 4. A THEORETICAL MODEL FOR FINANCIAL INTERMEDIATION IN THE ISLAMIC BANKING SYSTEM

This section develops an analytical theoretical framework, building upon several contributions in the literature (Akkas 1996; Khan 1986; Haque and Mirakhor 1986; Khan 1989), which formalizes the process of investment decision and its resulting impact on resource allocation under the Islamic banking system (IBS) and the conventional banking system (CBS). The model is adapted to the musharaka contract for ease of exposition, as modeling of mudaraba involves more technical details, with no significant changes in the results.

We have three parties: the investor, the bank and the account holder (the depositor), all assumed to be risk averse.

Under CBS, the bank and the account holder bear no risk, while the investor bears the risk of realizing a return rate lower than the interest rate. Under IBS, all of three parties bear the risk of a portion of the losses.

##### 4.1 The Investor's Side

The investment decision by the investor is function of the expected rate of return of the project, the interest rate in case of CBS and the bank's profit share in case of IBS, and the level of risk of the project incurred by the investor. Let  $I_{vc}$  be the investment decision function of the investor under CBS and  $I_{vs}$  his investment function under IBS, with subscript  $v$  for investor,  $c$  for conventional and  $s$  for Islamic. Thus, under CBS:

$$I_{vc} = I\{R, r_c, P(R < r_c)\} \quad (1), \quad \text{s.t. } I_R > 0, I_{r_c} < 0, I_P < 0.$$

where  $R$  is the rate of return of the project,  $r_c$  is the interest rate and  $P(R < r_c)$  is the probability that the rate of return of the project be lower than the interest rate, which is the risk borne by the investor under CBS.

Since the investor will earn nothing unless the rate of return is greater than the interest rate, the expected rate of return of the investor under CBS is defined as:

$$E(R_{vc}) = R \cdot P(R > r_c)$$

$$E(R_{vc}) = E(R) - R \cdot P(0 < R < r_c) \quad (2)$$

where  $E(R) = R \cdot P(R > 0)$  is the expected rate of return on the project. Equation (2) means that the rate of return that the investor under CBS expects is equal to the expected rate of return on

the whole project minus the loss associated with the risk that this rate be lower than the interest rate.

Thus, the investor's profit under CBS is:

$$P_{vc} = I \cdot [E(R_{vc}) - r_c]$$

$$P_{vc} = I \cdot [E(R) - R \cdot P(0 < R < r_c) - r_c] \quad (3)$$

On the other hand, under **IBS**, the investor's investment decision function is:

$$I_{vs} = I \{R, \lambda, P(R < 0)\} \quad (4), \quad \text{s.t. } I_R > 0, I_\lambda < 0, I_P < 0.$$

where  $R$  is the rate of return of the project,  $\lambda$  is the share of the bank in the profit, such that  $0 < \lambda < 1$ , which makes the investor's share  $1 - \lambda$ , and  $P(R < 0)$  is the risk of the project making losses, which is the risk borne by the investor in this case. The expected rate of return on the project for the investor is:

$$E(R_{vs}) = R \cdot P(R > 0) = E(R) \quad (5)$$

The investor's profit under IBS is simply his share in the project's expected return:

$$P_{vs} = I \cdot E(R) \cdot (1 - \lambda) \quad (6)$$

Equations (3) and (6) will form together the investor's condition for choosing one of the two systems.

#### 4.2 The Account Holder's Side

Let  $r_d$  be the interest rate the conventional bank gives on deposits, such that  $r_d < r_c$ , and let  $\gamma$  be the share of profit that goes to the account holder in case of Islamic bank, s.t.  $0 < \gamma < 1$ . Under CBS, the account holder's investment decision function only depends on the deposit interest rate:

$$I_{ac} = I \{r_d\} \quad (7), \quad \text{s.t. } I_{rd} > 0.$$

His return on an amount  $I$  under CBS is:

$$P_{ac} = r_d \cdot I \quad (8)$$

Under IBS, his investment decision function is:

$$I_{as} = I \{R, \lambda, \gamma, P(R < 0)\} \quad (9), \quad \text{s.t. } I_R > 0, I_\lambda > 0, I_\gamma > 0, I_P < 0.$$

His return on the amount  $I$  is simply a share of the bank's gain from the project:

$$P_{as} = \gamma \cdot \lambda \cdot E(R) \cdot I \quad (10)$$

Equations (8) and (10) will form together the account holder's condition for choosing one of the two systems, as will be shown.

### 4.3 The Bank's Side

Under **CBS**, let  $I_{bc}$  be the investment decision<sup>4</sup> function of the bank under CBS. Thus,

$$I_{bc} = I\{r_c, r_d, P(R < r_c)\} \quad (11), \quad \text{s.t. } I_{rc} > 0, I_{rd} < 0, I_p < 0.$$

The bank's total return will be:

$$P_{bc} = I(r_c - r_d - R \cdot P(R < r_c)) \quad (12)$$

Under **IBS**, the bank's investment function is:

$$I_{bs} = I\{R, \lambda, \gamma, P(R < 0)\} \quad (13), \quad \text{s.t. } I_R > 0, I_\lambda > 0, I_p < 0, I_\gamma < 0.$$

The bank's profit from a single project in this case will be its share in the project's expected return after deducting the account holder's share:

$$P_{bs} = E(R) \cdot \lambda \cdot (1 - \gamma) \cdot I \quad (14)$$

Equations (12) and (14) will form the bank's condition for choosing one of the two systems, as will be shown.

### 4.4 The Investment Decision

The preceding analysis helps us to draw figure 4 which illustrates the payoff that each of the investor (panel A), the account holder and the bank (panel B) gets from the project under each of the two systems. In both panels, the horizontal axis represents the expected rate of return on the whole project  $E(R)$ . We make the common assumption that risk  $P(R < 0)$  increases with return.<sup>5</sup>

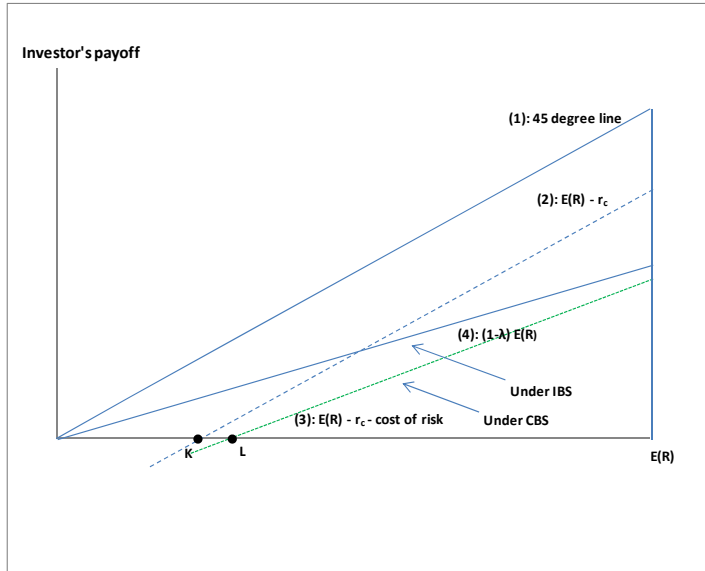
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<sup>4</sup> Actually, in the conventional case, the bank takes a loan decision, but the term investment is used approximately.

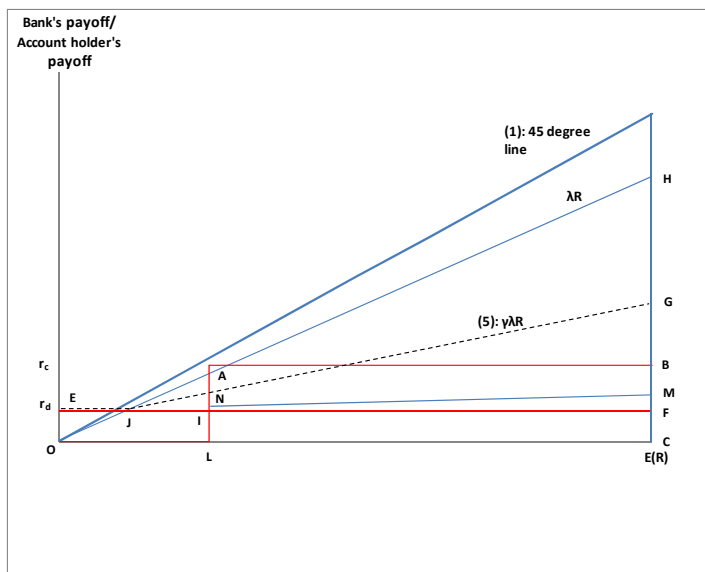
<sup>5</sup> Thus, as we move towards the right end of the horizontal axis, the increase in  $E(R)$  implies that  $R$  increases and  $P(R > 0)$  decreases simultaneously with the increase being larger than the decrease.

**Figure 4. Investment Decision of the Investor, the Account Holder and the Bank under CBS and IBS**

**Panel A: The Investor**



**Panel B: The Bank and the Account Holder**



Source: Author's illustration

In panel A, the 45 degree line represents the investor's payoff with no costs for the project. Under CBS, as equation 3 shows, this payoff is actually diminished by the interest rate and by the cost entailed in the risk of the project yielding a rate of return below the

interest rate. Since risk increases with return, so does this cost.<sup>6</sup> Curve (3) is the investor's actual payoff under CBS. Under IBS, the investor's payoff is a portion of the expected return on the project  $E(R)$  (equation 6). This is represented by curve (4).<sup>7</sup>

Curve (3) indicates that under CBS, the investor will not engage in any investments if the expected return on the project is lower than point L, because his payoff would be negative thereof. Conversely, under IBS, all projects with small but positive expected returns below point L are feasible, with a positive payoff for the investor. In addition, as shown from curves (3) and (4), the investor's payoff along the spectrum of projects over the horizontal axis is greater than in the conventional case, given the cost of risk that is present under CBS and mitigated under IBS. This makes the aggregate return for all investors is higher under IBS, as shown from the area under curve (4), compared with the area under curve (3).

Panel B shows the decision of the account holder and the bank under each system. We assume for simplicity that each loan by the bank is encountered by a deposit from an account holder. Under CBS, the account holder's rate of return is  $r_d$  regardless his deposit was lent or not and regardless of the rate of return of the investor's project. The bank's return, beyond point L, is the interest rate on loans  $r_c$  minus the interest rate on deposits  $r_d$ , diminished by the cost of risk of a non-performing loan, where  $r_c$  is a constant rate whatever the expected return on the project is. This payoff is represented by area ANMB. Before point L, there is no return for the bank, since no loans are given to projects with return less than the interest rate. However, the bank bears the cost of paying interest on deposits that are not lent, which is illustrated by area EOLI. The aggregate return for the bank under CBS is thus area ANMB minus area EOLI, which is a reflection of equation 12.

Under IBS, the account holder obtains  $\gamma\lambda R$ . For a sufficiently high value of  $\gamma$  and  $\lambda$ ,<sup>8</sup> his return under IBS, which is reflected by curve (5) is greater than his return under CBS which is  $r_d$ . It can be noted that at small return projects, the bank gives the account holder a high  $\gamma$  to

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<sup>6</sup> The path of this increase can be linear or non-linear depending on the form of the probability  $P(0 < R < r_c)$  and the relation between the risk and the return. For ease of exposition we assume that it is linear.

<sup>7</sup> This curve should typically be non-linear since, as shown below, the profit share  $\lambda$  for each project is calculated based on the project's risk and expected return and thus varies across projects. We draw, however, this curve as linear for ease of exposition.

<sup>8</sup> According to the coming conditions.

make him as satisfied as in CBS. The bank compensates for this by decreasing  $\gamma$  for high return projects. This explains the break in curve (5).

The bank's payoff under IBS is a share of the expected return on the project after deducting the account holder's share, that is  $\lambda(1-\gamma)R$  (equation 14). Since small return projects are now feasible, the bank's aggregate return under IBS is the area of the triangle JHG minus the area of the triangle EOJ. For appropriate shares of profit  $\lambda$  and  $\gamma$ , as explained below, the bank's aggregate return under IBS is larger than its aggregate return under CBS.

Thus adopting IBS is not only beneficial for the investor but also for the bank and the account holder.

#### 4.5 The arbitrage conditions

Each of our three parties, having the choice between IBS and CBS, will make an arbitrage between his profit under CBS and his profit under IBS, and will choose the system that yields a higher aggregate return.

On the investor's side we recall equations (3) and (6), which we equalize if the investor is indifferent between the two systems. Similarly, we equalize equations (8) and (10) for the account holder and equations (12) and (14) for the bank. That gives:

$$I \cdot [E(R) - R \cdot P(0 < R < r_c) - r_c] = E(R) \cdot (1 - \lambda) \cdot I \quad (15)$$

$$r_d \cdot I = \gamma \cdot \lambda \cdot E(R) \cdot I \quad (16)$$

$$I[r_c - r_d - RP(R < r_c)] = E(R)\lambda(1-\gamma)I \quad (17)$$

Solving for the three arbitrage conditions (15, 16 and 17), we get the following conditions:

$$\lambda_H = \frac{r_c + RP(0 < R < r_c)}{E(R)} \quad (18)$$

Equation (18) gives the higher bound for  $\lambda$  accepted by the investor to shift from CBS to IBS, that is, the interest rate increased by the cost of risk, the whole discounted by the expected rate of return. At this level of  $\lambda$ , the investor is indifferent between CBS and IBS. At lower levels, he will opt for IBS and at higher levels, he will opt for CBS.

The account holder's arbitrage condition gives the minimum value he accepts for  $\gamma$  to shift from CBS to IBS:

$$\gamma_L = \frac{r_d}{\lambda E(R)} \quad (19)$$

The bank's arbitrage condition gives:

$$\lambda (1 - \gamma) = \frac{r_c - r_d - RF(R \leq r_c)}{E(R)}$$

This means that the lowest value the bank accepts for  $\lambda$  to adopt IBS is:

$$\lambda_L = \frac{r_c - r_d - RF(R \leq r_c)}{(1 - \gamma)E(R)} \quad (20)$$

and the highest value the bank accepts for  $\gamma$  is:

$$\gamma_H = 1 - \frac{r_c - r_d - RF(R \leq r_c)}{\lambda E(R)} \quad (21)$$

Therefore, in order to ensure a satisfactory shift to IBS for all parties, each of our profit share parameters is bounded by a lower bound and a higher bound, as shown from equations 18 - 21. This gives two inequality conditions:

$$\text{Condition 1:} \quad \frac{r_c - r_d - RF(R \leq r_c)}{(1 - \gamma)E(R)} \leq \lambda \leq \frac{r_c + RF(0 \leq R \leq r_c)}{E(R)} \quad (22)$$

$$\text{Condition 2:} \quad \frac{r_d}{\lambda E(R)} \leq \gamma \leq 1 - \frac{r_c - r_d - RF(R \leq r_c)}{\lambda E(R)} \quad (23)$$

Inequalities (22) and (23) are necessary and sufficient conditions for all of the three parties to shift from CBS to IBS. Solving for the two inequalities easily gives an equilibrium interval for each of the two parameters that ensures that the investor, the account holder and the bank are acting rationally. Moreover, they provide guidance for calculating the profit shares in each project so as to maximize the return for each party.

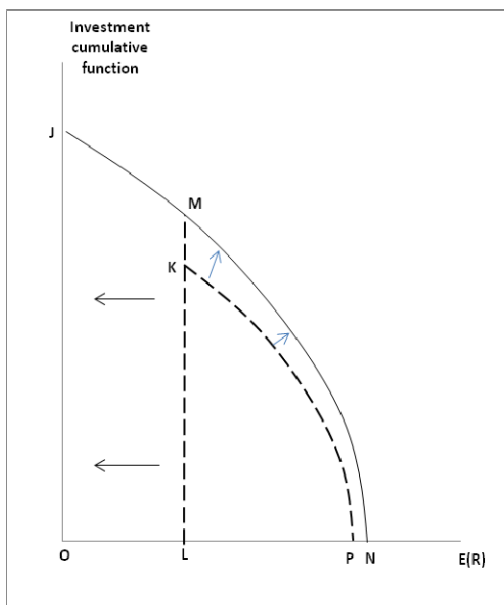
#### 4.6 Aggregate investment

As it was shown in figure 4, under IBS, low return projects become feasible. These projects are usually small projects undertaken by SME's, which, as mentioned previously, represent a huge share of GDP in Egypt, which reflects their large potential in increasing investment. In addition, it was shown from the arbitrage equations that Islamic banks can manipulate the profit shares for each party to make the investor's return for projects financed by Islamic banks higher than for those financed by conventional banks. This occurs by decreasing the bank's share in the profit of small projects and compensating for this through the increase in the number of small projects and the increase in the bank's share in the profits of large projects.

Large investors, in return, benefit from risk sharing, which represents a large cost reduction for these projects as higher returns are associated with higher risks. Since investment is a positive function of the return, offering higher returns and lower risk costs implies that the demand on funds for each investment project will increase relative to the conventional case. The result is that investment will increase via two channels: the invested amount at the project level, both for high-return and low-return projects, and the total amount of investment through the increase in the number of small projects.

Figure (5) illustrates the aggregate demand on investment “I” as a cumulative distribution function of the return on projects. The area under the curve JN represents total investable funds in the banking system. The function is such that  $I' < 0$  and  $I'' < 0$  to reflect the concentration of investment demand at low return projects given their large share in the economy. Line LM reflects the constraint imposed on low return projects by the interest rate.

**Figure 5. Aggregate Investment under Each System**



Source: Author’s illustration.

Under CBS, the aggregate demand on funds for investment is the area KLP. As projects with return less than L are unfeasible, the area OJML was excluded. Besides, for projects beyond point L, the interest rate and the risk borne by the investor solely reduce the investor’s demand on funds for investment.



Conversely, under IBS, the area OJML represents feasible investment. In addition, the bank allows higher returns than CBS to large projects, capitalizing on the enlarged project base, and, concurrently, shares the risk with the investor, which increases the investor's demand for funds for projects lying beyond point L. Therefore, under IBS, the aggregate demand on funds for investment is the area OJN, which is the funds supply. The Islamic bank would continuously seek to strike the balance between fund supply and fund demand through manipulating the profit shares of the investor and the account holder until reaching equilibrium between supply and demand, shifting curve JN inwards (in case of excess supply) or outwards (in case of excess demand). This maneuvering is not that flexible in CBS where demand for funds is rigid because of the interest rate binding constraint and its associated risk. Supply is also rigid because of the absence of risk in deposits coupled with narrow interest rate variations, which weakens depositors' response to rate changes.

To sum up, the above theoretical analysis has shown that the Islamic banking system has the potential of a more efficient allocation of resources for investment relative to the conventional banking system, especially in the context of the Egyptian economy. Besides, spreading the risk of the banking system through the increase in the number of projects helps strengthening the whole system's stability.

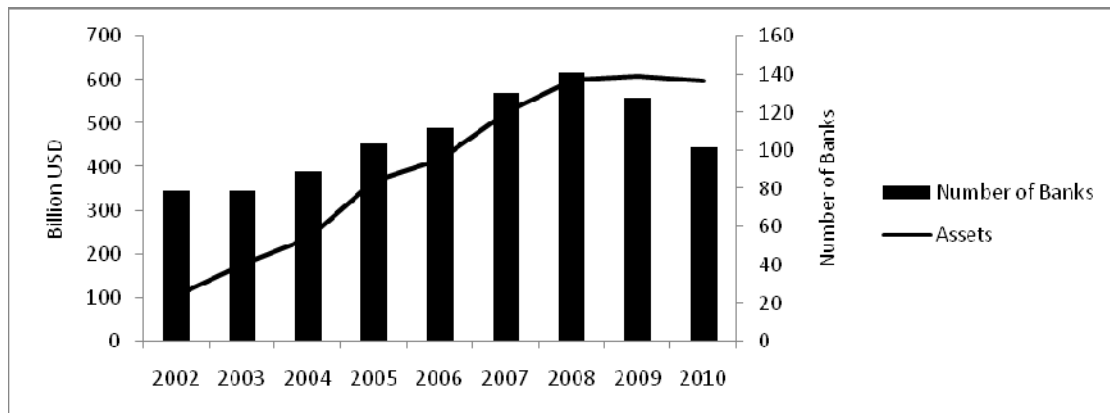
## **5. ISLAMIC BANKING IN PRACTICE**

In this section, we present the global performance of Islamic banks. We then run the econometric model testing for the impact of applying the Islamic banking system on a group of indicators of financial intermediation. We next analyze the deficiencies in the practice of Islamic banking and finally, we study the Indonesian experience as a success story in this field.

### ***5.1. Islamic Banks' Performance***

Islamic banking has witnessed significant growth in global assets over the last decade (Figure 6). The average asset growth for the period 2002-2010 is 27 percent. The highest growth has been in Asia and GCC countries.

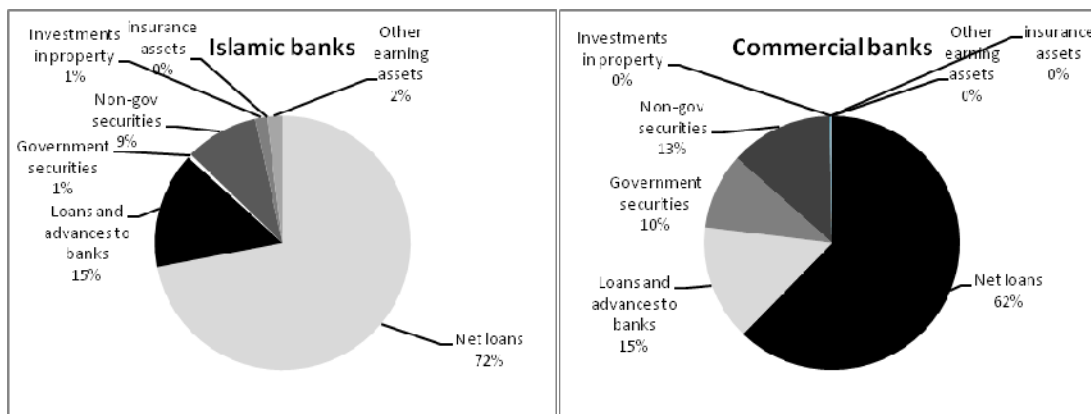
**Figure 6. Islamic Banks' Global Assets and Number of Banks, 2002-2010**



Source: Author's illustration based on IBIS.

Figure (7) illustrates the structure of earning assets in Islamic and commercial banks in the MENA region in 2009, based on Bankscope data. The most distinct difference is the non-reliance of Islamic banks on government securities as well as their higher share of “net loans” in total earning assets. It is noteworthy that, as Bankscope data do not take into account the specificities of Islamic financing by providing a special classification for Islamic modes of financing, the term “net loans” refers in Islamic banks to Islamic modes of financing and not to conventional loans.

**Figure 7. Earning Assets in Islamic and Commercial Banks, MENA Region, 2009**



Source: Author's illustration based on Bankscope data.

Table (2) reports five selected indicators of performance for Islamic versus conventional banks in the MENA countries, where the operating environment is close to that in Egypt, in 2007 and 2009, i.e., pre- and post the global financial crisis. The number of Islamic banks is 77 and that of conventional banks is 210.

**Table 2. Some Indicators of Performance in Islamic versus Conventional Banks in the MENA Region, 2007 and 2009**

Indicator	IB	Direction	CB	Difference	IB	Direction	CB	Difference
	2007: Before the crisis				2009: After the crisis			
Loan/customer deposit	107.6%	>	76.1%	31.5*	122.6%	>	77.0%	45.6***
Return on assets	4.2%	>	1.7%	2.5***	-1.2%	<	1.1%	-2.3***
Equity to asset ratio	30.5%	>	12.8%	17.7***	29.9%	>	13.8%	16.1***
NPL/gross loans	6.2%		7.6%	-1.4	7.2%		8.7%	-1.5
Loan loss reserves/gross loans	6.3%		8.2%	-1.9	9.2%		7.4%	1.8

Source: Author's calculations based on Bankscope data. Note: \* = significant at 10 percent level, \*\*\* = significant at 1 percent level, according to t-test.

The loan to customer deposit ratio, an important indicator of financial intermediation, is significantly higher in Islamic banks than in conventional banks before and after the crisis,<sup>9</sup> indicating better financial intermediation in Islamic banks. The ratio even increased in Islamic banks after the crisis.

The return on assets, reflecting profitability, is higher in Islamic banks before the crisis but lower after the crisis. In fact, Islamic banks showed resilience to the crisis at its first stage, but when the repercussions of the crisis propagated to the real economy, Islamic banks were affected by the falling cycle, showing a negative return on assets in 2009. The cause was mainly the concentration of their investments in real estate activities which were heavily affected by the crisis, especially in GCC countries and particularly in Bahrain and Kuwait (Ali 2011).

The equity to asset ratio, reflecting leverage, shows that Islamic banks rely more than conventional banks on equity in financing their operations and less on debt, which is in harmony with the philosophy of Islamic banks.

Non-performing loans to total gross loans are slightly lower in Islamic banks for both 2007 and 2009, but the difference is not statistically significant. Similarly, loan loss reserves to gross loans show no statistical difference between Islamic and conventional banks. They increased however in Islamic banks from 2007 to 2009, which may reflect prudential

<sup>9</sup> The ratio can exceed 100% because banks can use other sources than customer deposits, such as funds from other banks, to finance the loans when demand on loans is too high.

measures taken by Islamic banks in the aftermath of the crisis to face the drop in returns and the increase in non-performing loans.

### **5.2. The Impact of Islamic Banking on Financial Intermediation**

To discover the impact of adopting Islamic banking on financial intermediation, we run several regression models in each of which we regress indicator of financial intermediation on a dummy variable for the type of bank, in addition to control variables. The dummy variable takes the value of 1 for Islamic banks and zero otherwise. We use a panel data set of conventional and Islamic banks in a group of 19 developing countries<sup>10</sup> that have Islamic banking, over the period 1996-2010. The total number of banks is 616. Out of these, 125 are Islamic banks, with total assets averaging \$234.2 billion for the whole period, while the rest are conventional banks, with total assets averaging \$1361.3 billion for the whole period.<sup>11</sup> When correcting for the difference in the number of banks, average assets by bank is \$3.7 billion for Islamic banks, while it is \$7.8 billion for conventional banks, for the whole period.

The indicators include the loan-to-deposit ratio, credit growth, government securities held by banks relative to total assets, total assets weighted by credit risk, and equity investment to total assets (evolution of these indicators over the sample period is provided in appendix 1). All of these indicators measure the efficiency of banks in generating real investment. The loan-to-deposit ratio reflects utilized funds. Credit growth, measured by the annual growth of total net loans, reflects the pace at which banks increase financial intermediation. Government securities held by banks indicate bank resources that are geared towards the public sector rather than private investment. Assets weighted by credit risk reflect inherent credit risk<sup>12</sup> in financing. Finally, equity investment reflects utilization of banks' resources in equity sharing.

Theory suggests that the effect of Islamic banking on the loan-to-deposit ratio, credit growth and equity investment would be positive while the effect on government securities held by bank would be negative. The effect on credit risk is expected to be positive, as credit risk increases in a profit and loss sharing scheme. However, this indicator does not capture the

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<sup>10</sup> These are namely: Albania, Algeria, Bahrain, Bangladesh, Egypt, Indonesia, Iran, Jordan, Kuwait, Malaysia, Pakistan, Qatar, Saudi Arabia, South Africa, Sudan, Tunisia, Turkey, United Arab Emirates and Yemen.

<sup>11</sup> Share of each type of bank in total assets for each year is provided in Appendix 1.

<sup>12</sup> Credit risk is defined as the risk of loss of principal or loss of a financial reward stemming from a borrower's failure to repay a loan or otherwise meet a contractual obligation.

overall impact of Islamic banking on risk, as risk would be on the other hand mitigated through the increase in the number of financed projects, as it was illustrated in the theoretical model.

Table (3) reports descriptive statistics of these indicators for the overall sample and for conventional and Islamic banks separately. The data show larger means in Islamic banks as well as larger standard deviations in most variables. The high variance is due to the high growth witnessed by Islamic banks over the sample period in most indicators, while these indicators were relatively more stable in conventional banks. Implications of these indicators will be discussed with the regression results.

**Table 3. Descriptive Statistics of the Indicators of Financial Intermediation**

Indicator	Overall sample					Conventional banks					Islamic banks				
	Obs.	Mean	Std. Dev.	Min	Max	Obs.	Mean	Std. Dev.	Min	Max	Obs.	Mean	Std. Dev.	Min	Max
Loan-to-deposit ratio	4468	0.93	0.91	0.05	9.86	3761	0.88	0.78	0.05	9.87	707	1.22	1.37	0.05	9.45
Net loans growth	4011	20.41 %	45.5 8%	- 100 %	398. 89%	3320	18.28 %	41.2 8%	- 100 %	398. 89%	691	30.7 %	61.2 2%	- 100 %	382. 96%
Government securities/Tot al assets	257	8.30%	8.93 %	0%	49.6 %	222	8.95 %	9.34 %	0%	49.6 %	35	4.22 %	3.72 %	0.1 %	15.9 %
Equity investments/t otal assets	2317	2.24%	6.59 %	0%	98.3 %	1904	1.72 %	6.30 %	0%	98.3 %	413	4.64 %	7.35 %	0%	40.9 8%
Risk weighted assets/Total assets	1222	72.52 %	28.3 9%	0%	421. 6%	956	69.87 %	24.2 5%	0%	421. 6%	266	82.04 %	38.4 6%	0%	361. 5%

Source: Author's calculations based on Bankscope.

Control variables include total assets as a measure for the size of banks and GDP growth as an indicator of macroeconomic performance. In addition, deposits growth is believed to affect loans growth. The share of net loans to assets is also believed to influence the share of government securities as they may be substitutes.

After testing for the relevant hypotheses, the random effects model was used in all regressions.<sup>13</sup> Results for all models appear in Table (4).

<sup>13</sup> Also known as the error component model, this method takes into account random factors that affect the dependent variable and are believed to be uncorrelated with the regressors. It is based on the Feasible Generalized Least Squares (FGLS) technique, rather than OLS.

**Table 4. Regression Models for the Effect of Islamic Banking on Financial Intermediation**

	(1)	(2)	(3)	(4)	(5)
	Loan-to-deposit ratio	Net loans growth	Government securities/Total assets	Equity investments/Total assets	Risk weighted assets/Total assets
“Islamic”	0.170** (0.0828)	9.199*** (3.402)	-0.0556** (0.0248)	0.0233** (0.0103)	0.0780* (0.0406)
Log Total assets	0.322*** (0.0872)	-14.90** (7.328)			
Log Total Assets squared	-0.0107*** (0.00315)	0.506* (0.259)			
GDP growth	-0.00573*** (0.00189)	2.491*** (0.188)	-0.000952 (0.000937)	5.50e-05 (0.000171)	-0.00304** (0.00135)
Net loans to total assets			-0.214*** (0.0390)		
Deposits growth		0.387*** (0.0160)			
Constant	-1.474** (0.601)	109.1** (51.31)	0.215*** (0.0246)	0.0205*** (0.00472)	0.711*** (0.0208)
Observations	3,817	3,491	252	1,958	1,101

Source: Author’s calculations.

Note: \* = significant at 10 percent level, \*\* = significant at the 5 percent level, \*\*\* = significant at 1 percent level. Standard errors in parentheses.

The results show that the dummy of Islamic banks is significant in all of the models.

The coefficients show some important features:

1. In model 1, Islamic banks have a positive impact on the loan to deposit ratio, by an average of 17 percentage points relative to conventional banks. The size of the bank, as measured by total assets, has a significant non-linear positive effect, which slows down at high levels of assets, reflecting a concave function. To check whether the impact of banks’ size on the loan-to-deposit ratio varies by type of bank, we regress the loan-to-deposit ratio on total assets and GDP growth rate for each type of banks separately. Results, reported in appendix 2, show a larger coefficient of assets on loan to deposit ratio in Islamic banks, reflecting a stronger effect of size on loan-to-deposit ratio therein.

2. Regarding credit growth, the Islamic banks dummy in model 2 indicates that Islamic banks have higher net loans growth by on average 9.2 percentage points relative to conventional banks. The size of banks exerts a significant non-linear negative effect on credit growth, showing that credit growth decreases (i.e. credit increases less rapidly) with the bank’s size in a slowing manner, reflecting a convex function. This is natural or otherwise credit would increase infinitely with bank’s size. As banks get larger, they approach their stationary level

of credit growth, which decreases the effect of assets growth on credit growth. Yet, this effect stems from the subsample of conventional banks as partial regressions show no effect of bank size on credit growth in Islamic banks (appendix 2). As Islamic banks are much smaller in size, they may still not experience this effect.

The model also shows that an important determinant of net loans growth is deposits growth.

3. The negative coefficient of the Islamic dummy in model 3 reflects the non-reliance of Islamic banks on government securities. This is in line with figure (7) where government securities represented only 1 percent of earning assets. Net loans to total assets have a negative highly significant effect on government securities to total assets, reflecting the mutual crowding out between loans and government securities in the asset portfolio. As reported in Appendix 2, this coefficient in conventional banks is larger than that in Islamic banks, indicating a stronger crowding out effect in conventional banks, which is expected since reliance on government securities is minimal in Islamic banks.

4. Model 4 shows a positive impact of Islamic banks on equity investment as a share of the bank's assets, which is a direct implication of their no dependency on interest-based assets.

5. Finally, model 5 shows the increase of the level of credit risk in the assets of Islamic banks. Though this increase is slight, it is in line with the theoretical framework, as PLS contracts, by their nature, involve credit risk. Nonetheless, risk is mitigated through the diversification of the bank's investment portfolio that results from the increase in number of financed projects, but our indicator does not take this factor into account as it only reflects credit risk. Besides, data for the number of financed projects were unavailable.

It is worth noting in addition that GDP growth is a strong and positive determinant of credit growth, while its effect on the loan-to-deposit ratio and risk-weighted assets is negative but very small in magnitude. The negative sign of GDP growth on loan-to-deposit ratio is caused by the fact that the effect of growth on deposits is slightly higher than its effect on loans in conventional banks (see appendix 2), which has affected the whole sample coefficient. The negative sign on risk-weighted assets reflects the effect of growth in reducing credit risk as the probability of default decreases with better economic performance. The effect of GDP growth on government securities and equity investment is insignificant.

Finally, one reservation on the above models is that they have a very low explanatory power, with  $R^2$  ranging from 1 to 10 percent. This implies that the models lack additional

variables to explain the indicators taken as dependent variables. Indeed, unreported results<sup>14</sup> show that the fraction of the variance that is due to the random effects is high in all models, implying that there are many unobservable factors that vary among banks, and affect the indicators. These could include bank-specific factors such as the bank's management, the level of human capital in the bank, advertisement and marketing, etc. Nevertheless, the aforementioned reservation does not affect the validity of our results as the regressions' specification does not aim to exhaust all the variables that explain each indicator, but rather to discover the impact of Islamic banking on these indicators, which was found to be significant.

### ***5.3. The Problem of the Structure of Financing***

Despite the positive impact of Islamic banking on financial intermediation indicators, a major drawback in the practice of Islamic banks is the structure of their modes of financing. Most banks show orientation towards debt-like instruments, especially murabaha, at the detriment of the theoretically advantageous PLS instruments such as mudaraba and musharaka. Table (5) reports the structure of financing in Islamic banks in a group of countries from different regions of the world in 2009. It shows a dominant share of murabaha financing in most countries, versus a tiny share of mudaraba and musharaka financing. The whole set shows an average of 76.5 percent for murabaha, while only 2.5 percent is through mudaraba and 4.7 percent is through musharaka. This debt-biased structure of assets in Islamic banks would substantially impede their ability to affect investment as it reduces the number of PLS contracts which have been shown to be an engine for investment and are the main contribution of Islamic banking.

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<sup>14</sup> Technically, the fraction of variance due to the random effects,  $\rho$ , ranges among the five regressions between 0.44 and 0.91, with an average of 0.74.  $\rho$  is given by  $\rho = \frac{\sigma_{\eta}^2}{(\sigma_{\eta}^2 + \sigma_{\epsilon}^2)}$ , where  $\sigma_{\eta}^2$  is the variance of the random effects and  $\sigma_{\epsilon}^2$  is the variance of the stochastic error.



**Table 5. Structure of Financing in a Sample of Islamic Banks, 2009**

	<b>Murabaha</b>	<b>Ijarah</b>	<b>Mudaraba</b>	<b>Musharaka</b>	<b>Other</b>	<b>Provisions</b>
UAE	47.39%	32.11%	5.85%	7.22%	10.94%	3.51%
Bahrain	76.55%	21.52%	2.50%	5.50%	0.06%	6.13%
Jordan	86.90%	13.07%	0.18%	0.77%	0.47%	1.39%
Kuwait	82.72%	19.49%	NA	NA	3.01%	5.23%
Qatar	67.39%	19.13%	6.93%	0.63%	6.98%	1.06%
Saudi Arabia	98.82%	0.21%	NA	0.46%	2.39%	1.89%
<b>Total</b>	<b>76.29%</b>	<b>16.32%</b>	<b>2.60%</b>	<b>2.61%</b>	<b>5.33%</b>	<b>3.14%</b>
Bangladesh	54.69%	29.28%	0.24%	2.88%	12.91%	0
Indonesia	47.71%	2.03%	17.88%	29.66%	6.49%	3.78%
Iran	78.81%	2.04%	5.00%	12.03%	7.15%	5.02%
Malaysia	69.81%	23.74%	0.12%	0.70%	10.02%	4.39%
Pakistan	81.70%	11.18%	0.04%	9.24%	2.99%	5.16%
Turkey	90.30%	1.33%	NA	NA	12.59%	4.22%
<b>Total</b>	<b>76.42%</b>	<b>10.92%</b>	<b>2.26%</b>	<b>6.60%</b>	<b>8.36%</b>	<b>4.56%</b>
Egypt	107.43%	NA	3.19%	NA	0.05%	10.67%
Sudan	61.81%	0.03%	9.11%	23.18%	10.65%	4.77%
South Africa	30.12%	NA	NA	47.24%	23.47%	0.83%
<b>Total</b>	<b>83.70%</b>	<b>0.01%</b>	<b>5.83%</b>	<b>12.32%</b>	<b>5.74%</b>	<b>7.61%</b>
<b>Grand Total</b>	<b>76.45%</b>	<b>13.39%</b>	<b>2.53%</b>	<b>4.74%</b>	<b>6.79%</b>	<b>3.91%</b>

Source: IBIS

There are several reasons for this debt-biased structure of assets in Islamic banks, the most important of which being:

1. *The agency problem*: the relationship between the bank and the investor (the entrepreneur) is a principal-agent relationship that involves the risk that the investor cheats in reporting the profits to the bank, or in the case of mudaraba that he wastes the money via negligent management since he is not incurring any financial losses (Iqbal and Llewellyn 2002). The bank does not have direct control on the project but it can monitor and audit the accounts. This monitoring can however be too costly to the bank, especially in developing countries where low access to reliable accounting information, weak law enforcement and corruption prevail. This stimulated Islamic banks to use the less costly and easier-to-handle debt-like modes of finance, where the risk is borne mostly by the investor.
2. *The liquidity problem*: it arises from the fact that mudaraba and musharaka contracts are long-term and entail risk, while the bank may need to respond to cash withdrawal demands immediately, in order to maintain competitiveness with conventional banks (Iqbal 2008). Thus, banks prefer low maturity and lower risk contracts like murabaha and ijarah. This

problem becomes more significant as Islamic banks are deprived from the lender of last resort advantage since taking interest-based loans from the Central bank is not Sharia-compliant.

3. *Credit risk*: as banks are risk averse, they fear the risk of loss if they enter in a PLS contract. They hence prefer safe modes of finance to ensure that they would get back at least their capital.

#### **5.4. *The Indonesian Experience: Some Lessons***

Only few countries like Indonesia fared better in their Islamic instruments' structure, where the share of mudaraba and musharaka together has been relatively large, reaching about 50 percent of Islamic financing in Indonesia, which is well above the sample average of 8 percent (Table 5). Although its experience is relatively recent, Indonesia has succeeded in dealing with the different challenges with appropriate regulations, as will be shown below. Indeed, the Indonesian model has been successful in affecting investment and growth. Abduh and Omar (2010), relying on quarterly data from 2003 to 2010, found that Islamic banks' financing granger-causes GDP growth at a 5 percent significance level. Error correction equations show that there is causal bi-directional positive relationship between Islamic banks' financing and GDP growth. In addition, a considerable share of the financed projects is generated by micro, small and medium enterprises (MSME). Finance to MSME constitutes 54.32 percent of the total financing by Islamic commercial banks or Islamic business units in Indonesia in 2009 (Bank Indonesia 2009). Therefore, we shed some light on the Indonesian experience in this subsection.

Indonesia operates both conventional and Islamic systems. The country supported the Islamic system with a strong legal basis, consisting of an integrated series of regulations, until came the Islamic Banking Act in 2008 (henceforth IBA), which fully regulates the Islamic banking system (Ismal 2011). Several subsidiary regulations have followed since then, regulating in depth the different aspects dealt with in the 2008 Act. Some important features appear out of this legal set:

- An important trigger of growth of the industry was the ease of licensing procedures and low capital requirement, equal to 1 trillion rupiahs (US\$110 million) (Article 5, regulation no. 11/3/2009). In Egypt, although the capital requirement is not high relative to GDP per capita

compared to Indonesia,<sup>15</sup> the Central Bank is reticent about licensing new fully-fledged Islamic banks or Islamic units in conventional banks.

- The law stressed on the importance of the feasibility of projects funded by Islamic Banks: *“To ensure matters as considered in paragraph (1) (i.e., the commitment and capability of the candidate facility receiving customer to settle his/her liability on time), a Sharia (Islamic) Bank must conduct intensive assessment on the attitude, capability, capital, Collateral, and business prospect of the proposed Facility Receiving Customer”* (Article 23, IBA). This helped increase the general efficiency of projects as well as reduce the incidence of bank losses.
- The law encourages conventional banks to open Islamic windows. It allows Islamic units to later on convert into independent Islamic banks upon Bank Indonesia’s (the Central Bank) license with easy procedures and the requirement of adopting all Islamic Banking principles. In the event that the Islamic unit of a conventional bank has reached at least 50 percent of the total asset value of its Parent bank, the conventional bank must split the Islamic unit into an independent Islamic Bank.
- Sharia rules violation by Islamic banks or Islamic units of conventional banks is sanctioned by law. Sanctions take the form of different penal fines and different years of imprisonment of involved individuals (Article 64, IBA).

One of the main aspects of the Indonesian model is the Islamic Rural banking model. Rural banks operate together with commercial banks in Indonesia. These are small local banks, which operate to help development purposes in rural and local communities. They were used as an intermediary between Islamic commercial banks and local customers, given their better networks within local communities. Islamic rural banks were introduced at the same time as Islamic commercial banks. Relying on their small size and local ownership, their profit and loss sharing schemes were suitable to serve small entrepreneurs in less developed areas, particularly in agriculture but also in other activities. The law encouraged their establishment through lowering their minimum required paid-up capital, which is on average 1 billion rupiahs (\$110 thousand), i.e., 0.1 percent of the required capital for an Islamic commercial bank. The law let this minimum differs across regions, according to their level of

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<sup>15</sup> In Indonesia the capital requirement is equal to 37,000 times GDP per capita, while in Egypt it is equal to 32,000 times GDP per capita, in 2010.

development, so that it was the lowest in the least developed areas. Islamic rural banks in Indonesia are the main factor that made MSMEs acquire the previously mentioned large share of Islamic financing in Indonesia.

Meanwhile, to solve liquidity problems, the government established an Islamic interbank money market<sup>16</sup> (referred to with the Indonesian abbreviation PUAS) and an Islamic capital market. These markets are based on profit and loss sharing between surplus banks, deficit banks and the Central bank. Surplus banks transfer their excess liquidity to the Central Bank, which finances banks with liquidity shortages, both transactions being on the basis of *mudaraba* or *musharaka*. In order to respond to short-term requirements, *mudaraba* and *musharaka* investments are securitized and profits are made of trading these securities in the money market, similar to stock trading in the stock market.

However, this would have not been possible without the issuance of *sukuk*, which was a trigger of the industry's growth. *Sukuk* are basically certificates of ownership in *mudaraba* and *musharaka* contracts as well as real assets, negotiable in secondary markets, based on their returns. *Sukuk* are structured based on the principles of their inherent asset contracts, e.g., *mudaraba*, *musharaka*, *ijarah*, etc. The holder of a *sakk* has a title to the risks and benefits coming out of the *sakk*. Their major benefit is to enhance liquidity in the financial market while ensuring the continuity of medium and long-term investments, which boosted the growth of Islamic assets in Indonesia to reach around 40 percent per annum.

## **6. HOW TO BENEFIT FROM ISLAMIC BANKING IN EGYPT?**

The theoretical analysis has shown that Islamic banking has the potential of strengthening the weak developmental role of the Egyptian banking system by fostering investment and extending it to SMEs. Performance indicators have in general shown better performance of Islamic banks in the MENA region compared to conventional banks, pre and post-the global financial crisis. The econometric analysis has shown a positive impact of Islamic banks in a panel of developing countries on indicators of financial intermediation, particularly the loan-to-deposit ratio, credit growth and credit to the private sector.

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<sup>16</sup> The money market is a place whereby medium and short-term instruments are being traded exclusive from the capital market, which deals with long-term investment.

However, contrary to theory, Islamic banks have most frequently been engaged in debt-like transactions that drove them away from profit and loss sharing schemes, impeding their ability to foster investment. Many difficulties in countries where Islamic banks are functioning prevent from fully capitalizing on the strengths of Islamic banking, including inadequate legal framework, lack of supporting institutions, insufficient expertise and lack of advanced risk management techniques.

This section provides recommendations to benefit from the Islamic banking model in Egypt, in light of the various difficulties and drawing from Indonesia's successful experience. For this purpose, the following elements are necessary:

1. Enacting a comprehensive Islamic banking set of regulations taking into account Islamic banks' specificities and including the following:

- 1.1. Effectuating the role of mudaraba and musharaka by:

- a) Remedying the agency problem through strengthening the bank's stance vis-à-vis the investor. This can occur through strict penalization of fraud or violation of the contract by the investor and an efficient procedural framework allowing the bank to get its rights in such cases. The law should define the scope of restrictions the bank can put on the investor to strike the balance between each party's rights. The law should give banks incentives to expand mudaraba and musharaka, such as tax exemptions on profits realized from these modes. Such incentives can be structured based on development priorities to promote specific sectors and for the support of small enterprises. Besides, losses due to the investor's negligence or lack of compliance with the bank's restrictions are in Islamic law totally borne by the investor. Also, the cost associated with auditing and monitoring can be shared by the bank and the investor, through affecting the profit sharing parameters. Finally, the law should require from banks to conduct rigorous ex-ante assessment of financeable projects, according to well-defined rules and criteria, to assure systemic stability.

- b) Remedying the liquidity problem. The first solution is to securitize long-term Islamic assets via the issuance of sukuk. This requires efficient secondary markets to trade and negotiate these securities. The State has an important role to play in providing the legal infrastructure for establishing this market. Second, it is important

to establish an Islamic interbank money market to solve liquidity imbalances (Solé 2007).

c) Reducing credit risk. For this purpose, profit shares should be calculated for each project according to the inherent risk and the expected return such as to compensate the bank for the increased risk relative to debt-like instruments. Tax exemptions, procedure facilitation and strong property rights and protection for the financier readily reduce the cost of the project and hence compensate for the additional risk of profit and loss sharing scheme.

1.2. Regulating Islamic banks in light of their specificities.<sup>17</sup> Making Islamic banks subject to the same regulatory framework as conventional banks, which are different in functionality, can cause important inefficiencies. Several issues are to be considered in the law about the relation between Islamic banks and the Central bank (Dawaba 2009, Honohan 2001, Iqbal, Ahmed and Khan 1998):

a) The legal reserve requirement imposed by the Central bank<sup>18</sup> on banks to assure a certain degree of liquidity and restrict their capacity to create money needs to be revised when it comes to Islamic banks. The reserve requirement keeps a substantial portion of Islamic banks' resources idle, preventing the optimal investment of these resources by Islamic banks and decreasing their returns. As only current accounts are guaranteed in Islamic banking, the need for liquidity assurance is smaller than in conventional banks. In addition, Islamic banks money creation is extremely limited because almost the entirety of funds is used in real projects and there are virtually no chances that the money would be deposited again in the banking system.

b) The liquidity requirement imposed by the Central bank, which is a minimum ratio of liquid assets to liabilities,<sup>19</sup> includes assets that Islamic banks do not use such as different interest-based securities, which forces Islamic banks to hold high cash reserves to meet the minimum ratio of liquid assets. The solution is to design a specific structure of liquidity requirement for Islamic banks that takes into account securitized assets and eliminates Sharia-incompliant types of assets. In addition, the minimum

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<sup>17</sup> This point relies on Dawaba (2009).

<sup>18</sup> In Egypt it is currently 10 percent of EGP deposits and 10 percent of USD deposits.

<sup>19</sup> In Egypt it is 20 percent of liabilities in EGP and 25 percent of liabilities in USD.

ratio need not be as high as in conventional banks, since some types of investment accounts in Islamic banks are long-term contracts.

c) Restrictions on the credit portfolio of banks need to be revised regarding Islamic banks, including ceilings on banks' investments in securities (including shares), mortgage finance and financial leasing. Such restrictions are in contradiction with the nature of Islamic banks which aims at investing in real activities.

d) Similarly, restrictions on transactions in fixed and movable assets need to be revised, as they represent an impediment to Islamic banks whose activity relies partially on murabaha and ijarah. All such activities require that Islamic banks be allowed to buy and/or sell fixed and movable assets.

e) In conventional banks, interest paid is treated as a tax-deductible expense. Islamic banks should be given a similar treatment regarding their paid out profits.

1.3. Facilitating licensing new Islamic banks and conventional banks to open Islamic windows on condition that their operations and financials be totally independent from the interest-based part of the bank.

1.4. Encouraging the establishment of Islamic small local banks, following the model of rural banks in Indonesia, with specially low capital requirements and with special incentives for those which start in under-developed areas like Upper-Egypt; and organizing the links between large banks and small banks.

1.5. Defining and organizing different modes of finance. Islamic banking comprises many other instruments than those mentioned in this paper, which respond to different investment needs.

1.6. Establishing adequate accounting and auditing standards. In this regard, the law can largely benefit from the standards of the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), which was created in 1990 and has the role of issuing internationally recognized standards on accounting and auditing of Islamic banks (Solé, 2007). International governance and risk-management standards are also to be adopted according to the Islamic Financial Services Board (IFSB) guidelines. This will provide the law with a strong prudential aspect and allow consistency of Egyptian Islamic banks with Islamic banks abroad.

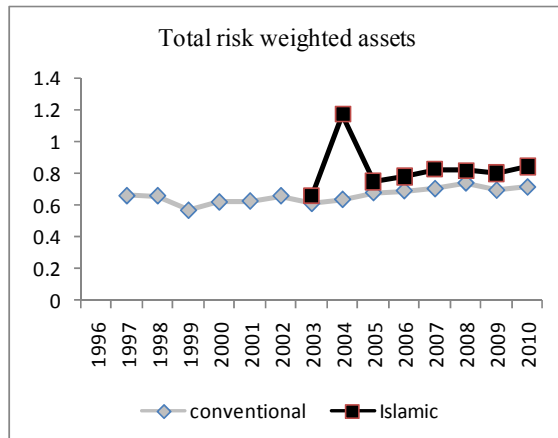
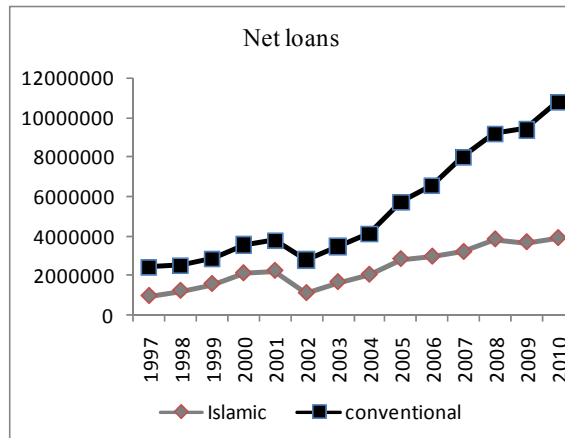
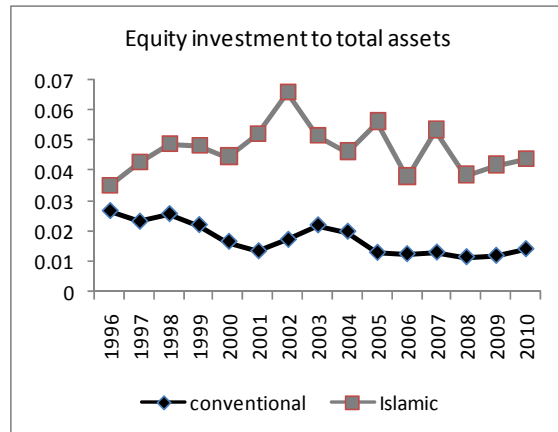
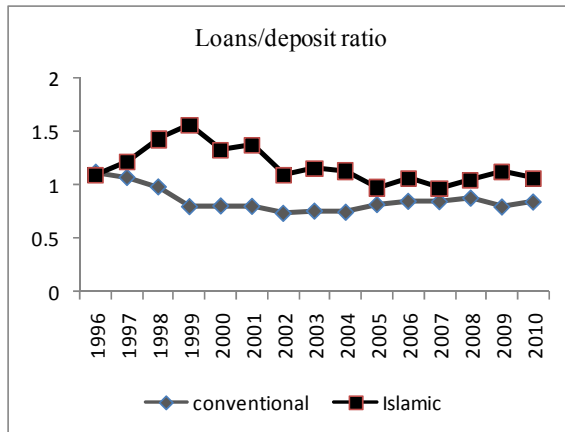
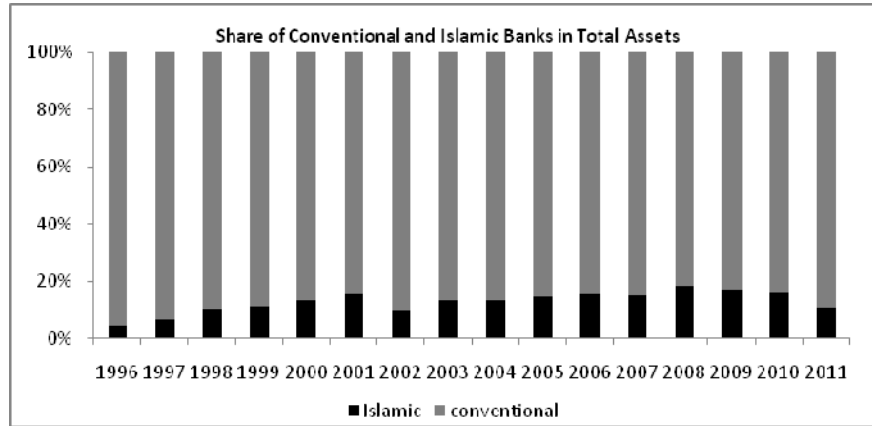
- 1.7. Establishing a unified supervisory Sharia Board that has the role of ensuring Sharia-compliance of Islamic financial products and consistency within the market.
2. Promoting the Islamic insurance industry through adequate legislation that regulates its functioning and relation with the Egyptian Insurance Supervisory Authority. Islamic insurance companies are important in complementing Islamic banks' activities, especially in reducing risks. In Egypt, there are currently 8 Islamic insurance companies (IFIS 2011). However, they are not functioning at their full potential due to the lack of an adequate legal framework and the lack of public awareness.
3. Building societal understanding of Islamic banking through awareness campaigns. This requires close cooperation between Islamic financial institutions and the Government as well as communication with both the business community, especially small businesses, and the household community.
4. Islamic banking specialists and strategists should continuously seek for innovative products that respond to the ever-changing needs of markets. Products are not confined to mudaraba, musharaka or other existing instruments. Every financial instrument that is compliant with Sharia rules is allowed in Islamic banking. Strategists nowadays are using financial engineering to design new sophisticated products. Islamic bankers in Egypt should always keep track of these developments.
5. Finally, it is worth emphasizing that the macroeconomic environment is an important determinant of the success of Islamic banking. Hence, macro policies should be catering to enhance the business environment and to extend more support to SMEs. This, along with the aforementioned package of institutional support to ease structural and legal constraints, will ensure a healthy functioning of Islamic banking.

Implemented gradually and coupled with increasing demand for credit and investment in a vibrant Egyptian market, the previous elements make of the Islamic banking industry a prospective channel for development in Egypt.



## Appendix 1

### Figure A1. Sample Descriptives



Source: Bankscope.

## Appendix 2

**Table A1. Regression Results for the Islamic and Conventional Subsamples**

VARIABLES	Loan-to-deposit ratio		Net loans growth		Government securities to total assets	
	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
Log Total assets	0.628*	0.277***	-8.366	-13.79**		
	(0.344)	(0.0799)	(29.04)	(6.279)		
Log Total Assets squared	-0.0230*	-0.00845***	0.234	0.461**		
	(0.0125)	(0.00288)	(1.033)	(0.221)		
GDP growth	0.000445	-0.00682***	1.415**	2.640***	-0.00162	-0.000813
	(0.00903)	(0.00167)	(0.704)	(0.183)	(0.00124)	(0.00106)
Net loans to total assets					-0.117***	-0.234***
					(0.0359)	(0.0474)
Deposits growth			0.263***	0.463***		
			(0.0364)	(0.0180)		
Constant	-3.157	-1.273**	92.73	100.5**	0.116***	0.226***
	(2.366)	(0.551)	(203.0)	(44.16)	(0.0221)	(0.0292)
Observations	614	3,203	529	2,962	35	217

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