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Profit-Loss Sharing and Economic Value Added in Islamic Banking Model

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Abstract

The adoption of Profit-Loss Sharing arrangement in Islamic banking models can create value to their shareholders. Previous studies discuss Profit-Loss Sharing arrangement in the context of financial intermediation theory, but fail: to link the adoption of Profit-Loss Sharing arrangement with value creation and to produce empirical evidence. The aim of this study is to demonstrate the adoption of Profit-Loss Sharing arrangement in Islamic banking model and produce empirical evidence to determine the extent of the adoption of Profit-Loss Sharing in Islamic banks creates value. This study utilizes the Malaysian Islamic banks panel data from 2005-2009 and employs *Economics Value Added* (EVA) as a technique of value creation measurement. The empirical findings reveal that there is no indication that the adoption of Profit-Loss Sharing arrangement on the deposits structures significantly creates positive value to Islamic banks. This result is consistent for both measurement of value creation against shorter and longer terms opportunity costs of capital employed. This suggests that Islamic banks utilize a lower cost of capital, as Non-*mudharaba* deposits accounts constitute a large amount of current and saving accounts. On the other hand, for asset structure, this study finds that funds allocated in Securities Investment (FIM) using Profit-Loss Sharing arrangement is significant and create positive value. However, funds allocated in Financing (FPLS) based on Profit-Loss Sharing arrangement results a reduction in the value of Islamic banks. It is evident that empirically Islamic banks need to extensively utilize Profit-Loss Sharing arrangement in their operation, hence create value to their shareholders.

Keywords: Profit-Loss Sharing; EVA; Value Creation

JEL Codes: G11, G14 and G32

1. Introduction

The traditional Arrow-Debreu⁴ model of resource allocation predicts that financial intermediaries play no role, since the surplus and deficit units would directly interact through market. Moreover, according to Fama (1980), in this context the application of Modigliani-Miller theorem asserts that regardless how the resources are allocated by the financial intermediaries, it cannot create value. However, this is not true in the environment of market imperfection. In the presence of asymmetric information and transaction costs, it is believed that the financial intermediation activities do create values.

Banks as financial intermediaries play a crucial role in mobilizing funds and allocating the resources in order to generate returns to the depositors and the shareholders'. Advocates of the financial intermediation models assert that the economic arrangement between depositors, banks and entrepreneurs can be represented by a principal-agent relationship (Stiglitz and Weis 1981, Diamond 1984, Bashir 1990, Harris and Raviv 1991). Theoretical models of financial intermediation suggest that the principal-agent relationship affect the banks' activities that include screening and monitoring entrepreneurs (Stiglitz and Weis 1981, Diamond 1984, Thakor 1996) and allocation of capital (King and Levine 1993). However, a strand of studies has documented the ability of banks to deal with asymmetrical information arises from the principal-agent relationship through the designs of its financial contract, for instance Diamond (1984) and Gale and Hellwig (1985). Furthermore, it is argued that the dominance of debt-based contract is due to the ability of banks to minimize the costs associated with asymmetric information, through bank's activities such as monitoring; and acquiring and processing information in diversifying risks across the assets. As a result, banks are able to generate higher returns and create higher value to their stakeholders; depositors and shareholders.

In contrast, Islamic banking in principle, promotes Profit-Loss Sharing arrangement, in which fund providers and entrepreneurs agree to enter risky economic activities and share the returns⁵. As the fund providers, depositors and shareholders possess a right to reward, but this reward should be commensurate with the risk and effort involved. Thus, reward is governed by the returns on individual projects for which funds are supplied (Mills and Presley 1998). In the setting of Profit-Loss Sharing arrangement, Islamic bank is believed to be able to minimize the costs associated with asymmetrical information problems through its activities, namely, screening and monitoring; and utilizing the information in which the nature of Profit-Loss Sharing arrangements allow Islamic bank to acquire information on the projects (Bashir 1990, Ahmed 2000). Therefore, Islamic banks could utilize the information, consequently, make better investment decisions and generate higher returns. Hence, they could create higher value to their depositors and shareholders.

To date, in the context of the above descriptions, there is no such study done that is to examine to what extent the adoption of the Profit-Loss Sharing arrangement by Islamic banks could create value to their shareholders. In a related approach, Rosly and Zaini M. (2008) argue that financial ratios such as Return on equity (ROE) and Return on *mudharaba* deposits (ROMD) can be used to address value creation, specifically in Islamic banking and represent values generated to shareholders and

⁴ See Arrow(1964) and Debreu (1959),

⁵Bashir (1990) outlines five types of non-interest financing arrangements related to risk sharing. These are: participation financing (musyaraka); trust financing (mudharaba); cost plus trade financing (murabaha); rental financing (Ijara); and hire purchase financing (Ijara wa-iqtina).

depositors. They argue further that since both shareholders' capital and *mudharaba* investment deposits constitute risk capital, thus variance in yields should be proportional to risk. In their study of Islamic and conventional banks deposits and capital, conclude that the results are not true in the case of Islamic banks⁶ in Malaysia. They found that the ROMD does not commensurate with the ROE, which is much higher, especially for Islamic banks with conventional banks as the parent bank. Thus, *mudharaba* depositors are not justly rewarded, as compared to the shareholders, although *mudharaba* deposits represent a larger proportion of the capital utilized by the Islamic banks.

The present study differs in significant ways. First, it focuses on the issue of value creation, particularly for depositors and shareholders in Islamic banking by specifically as a result of the adoption of the Profit-Loss Sharing arrangement. This study employs the asset side and liability side approach. Following Ahmed (2002), this study assumes that the analysis of net profit is done independently where the mode of financing has been analyzed individually and not as a set of asset. It also applies to the deposits. Second, this study, theoretically propose a model to determine to what extent the adoption of the profit sharing; and profit and loss sharing arrangement create value to the shareholders and depositors. Third, this study uses *EVA* as a measurement of value creation to the depositors and shareholders of Islamic bank, instead of the financial ratios.

The remaining of the chapter is organized as follows. Section 2 presents the review of literature. In section 3, model specification is proposed. Next, estimation utilizing selected Islamic banks data is analyzed. Finally, section 5 concludes.

2. Literature Review

This study builds based on the significant literature explaining how value is created, specifically within the theoretical views of the value chain framework (Porter 1985) and transaction costs economics (Williamson 1979 and 1995). The two theoretical frameworks, Porter (1985) and Williamson (1979 and 1995) are commonly applied in the study to identify the sources of value creation in the context of the firm's activities, including banks. A strand of studies that focused on these frameworks are the product innovation (Amit and Zott 2001, Sannes R. 2001, Scholtens and Wensveen 2003) and the contractual arrangement (Llewellyn 1999, Archer et. al. 1998, Rosly and Zaini M. 2008). Taken together, these two theoretical frameworks suggest that the sources of value creation can be identified through an effective sequence value chain of activities in the product innovation (Porter 1985) and transaction efficiency (Williamson 1979), in which a reduction of transaction costs arise from the contractual arrangement. This implies that the ability to reduce transactional inefficiencies will generate value.

However, the contractual arrangement in Islamic banks differs from the conventional banks. The adoption of the Profit-Loss Sharing arrangement can be applied on the asset and liability sides of Islamic banking operations. On the liability side, Islamic banks use *mudharaba* contract more dominantly⁷. While on the asset side, Islamic banks use *mudharaba* and *musyaraka* contracts as Profit-Loss Sharing

⁶ The study uses only focuses on the year 2005 financial data for six local banks, namely Bank Islam Malaysia Berhad, Hong Leong Islamic Bank Berhad, RHB Islamic Bank Berhad, Maybank Berhad, Bank Muamalat Malaysia Berhad and EONCap Islamic Bank Berhad.

⁷ At least it is true in the case of Islamic banking in Malaysia (Chong and Liu, 2009).

arrangement in providing financing. But, some studies such as Khan (1995) and Aggarwal and Yousef (2000) pointed out several factors that hamper the use of Profit Sharing (PS) modes of financing. The former emphasize the lack of application PS modes of financing due to firms believe they can reinvest their surpluses to enhance growth. The latter highlights the issue of agency problem cause the reluctant of the banks to use the PS modes of financing.

Adding to that, according to Dar and Presley (2001), the lack of Profit Loss Sharing application in Islamic bank, among the factors are issue of agency problems between the contracting parties. Agents are disagreeing on, first, the incentives in which *mudharib* have disincentive to put more effort on the projects and have incentives to report less profit, risk sharing, and the presence of sound regulations such as legal rights, taxation and establish secondary markets. In the same context, Ahmed (2002) believes that since the PS contract on the asset and liability side of an Islamic bank are different, as fund user and fund owner, respectively, lack adoption of Profit-Loss Sharing on the asset side due to higher risk exposure as a fund owner. However, our recent study; Ruhaini and Abdul Ghafar (2010) shows that Profit-Loss sharing arrangement is able to minimize asymmetrical information and transaction costs. Thus, Islamic banks can maximize their net profit and hence they could create value to their shareholders.

In another development, the question of how to measure value creation of shareholders for bank still exists. Bowman and Ambrosini (2000) outline two distinctive analyses of value: use value and exchange value. In the same context, Lepak et. al. (2007) suggest that in the study of value creation activities, two important economic conditions need to be considered; the monetary amount exchange must exceed the producer's costs of creating value, at least for a point in time; and the monetary amount that a user willing to exchange is a function of the perceived performance difference between the new value that is created and the next best alternative. In view of analyzing the value creation through use value, the adoption of Profit-Loss Sharing arrangement as a product innovation, is believed to have contract features that able to generate value to its shareholders. A few studies have been developed on the measurement of value creation in banks to their shareholders. Among the studies developed are Uyemura et. al. (1996), Fiordelisi (2007), Polato (2007), Stoughton and Zechner (2007), Bidabad (2008) and Fiordelisi and Molyneux (2010). These studies use *EVA* as a method to measure value creation for banks. A strand of studies, Talla et al (1999) and Schoon (2005) used stock price; and Rosly and Zaini (2008) used financial ratios as the method of measurement to show value creation in a bank. Since the characteristics of banking business require a distinct approach to determine value creation, some studies suggested that banks have a specific measurement to determine the value creation. For instance, Copeland, Koller and Murrin (2000) suggest that the most suitable approach to determine the value of a bank is to use the economic approach, i.e. *EVA*. They argue from the perspective of liability management in bank, and subsequent potential operational activities to create value. In the same light, Schroeck (2002) and Stoughton and Zechner (2007) assert that the approach to determine the value of bank need to consider three factors that affect value creation for bank, namely banks operate in a highly regulated industry; its operation involve both sides of balance sheet, thus liability management is crucial; and an effective risk management are believed to create value to the bank (Scholtens and Wensveen, 2003). This general description of how value can be created to its shareholders also applied to bank (Uyemura et. al. 1996; Fiordelisi 2007; Polato 2007; Stoughton and Zechner 2007; Bidabad 2008 and Fiordelisi and Molyneux 2010).

These studies employed a common measure of shareholder value creation, *EVA* to capture the value generated from the bank's activities on the capital invested.

Therefore, this study chooses to employ *EVA* as a measurement of shareholder value creation for Islamic bank. The superiority of *EVA* over the other methods of measurement are first, the study of value creation for shareholders of Islamic bank should measure not market value per se, but the value added to each invested capital by shareholders. It shows that *EVA* measurement is strongly correlated with changes in market value added. Moreover, it has been empirically proven that the concept of *EVA* is the best operational performance measure. In addition, this study analyzes the data of non listed banks and only two banks are public listed. Thus, the value creation cannot be captured through market value (share prices). Second, method of measurement such as financial ratios [e.g Return on equity (ROE) or Return on asset (ROA)] and earnings per share do not properly reflect the risk and indicate only average profitability. Meanwhile, *EVA* is measured on each invested capital and properly assessed on margin of transaction and for asset portfolio. Thus, it provides better decision making and performance evaluation to evaluate the value creation on banks' activities.

3. The Model

We consider Islamic bank has two sources of funds. First, Islamic bank raises equity capital from the shareholders, (TE). Second, Islamic bank accepts deposits from depositors in term of current account deposits, TDc and investment account deposits, TD_{IA} . Thus, the Total deposit in the bank is $TD = TDc + TD_{IA}$. The structure for sources of fund is stated as:

$$TS = TE + TDc + TD_{IA} + \varepsilon_1 \quad (1)$$

where; TS is the Total sources of fund, TE is the Total Shareholders' fund, TDc is the Total current account deposits, TD_{IA} is the Total investment account deposits and ε_1 is residual on sources of fund. Equation (1) can be specified to describe capital structure of Islamic bank in relative by dividing with TS in which; $\sigma + v + \gamma \geq 1$, if $\varepsilon_1 = 0$ (1a) Or; $\sigma + v + \gamma > 1$ or < 1 , if $\varepsilon_1 \neq 0$ (1b), where $\sigma = TE/TS$, $v = TDc/TS$, $\gamma = TD_{IA} / TS$.

In this model, it is assumed that shareholders and investments accounts deposits are governed by *mudharaba* contract only. Thus, in *mudharaba* contract, investment account holders (*rabbul maal*) supply funds to Islamic bank (*mudharib*) for financing and investment purposes. Islamic bank contributes its expertise. The returns, in terms of net profit from financing and investment activities on the asset side will be paid to the depositors of investment accounts and shareholders based on the predetermined ratio. The Net income generated from investment account deposits net of operating cost involved in managing the funds, is divided between Islamic bank, who contributes expertise, and investment accounts depositors who provide funds, according to predetermined ratios. Let ρ be the predetermined ratio to Islamic bank for contribution of expertise and investment account holders are entitled to $(1-\rho)$. On the other hand, Islamic bank also derives income, that is Net income after zakah and tax net of operation and non operating costs, generated from the shareholders' funds. Thus, net profit derived from Islamic bank's entitlement of ρ and after zakah and tax net-income generated from shareholders' funds (TE). Islamic bank

also offers current accounts based on contract *al-qard* that is a loan extended without interest or profit sharing.

On the asset side, Islamic bank allocates the funds and make investment decisions on the opportunity available, in order to generate value on the total funds (TS) from the shareholders (TE) and depositors (TD). It is assumed that Islamic bank is to decide allocations of funds for financing (TF) and investment decisions (TI). The descriptions of financing and investment opportunities are as follows. For simplicity, let assume there are two types of contract available for Islamic bank⁸. In principle, the contract could be in two forms of equity mechanisms (i.e. *mudharaba* or *musyaraka* contract) and mark up based mechanism (i.e. *murabaha*). The structure of the uses of funds on the asset side (TA) can be stated as follows:

$$TA = TF + TI + \varepsilon_2 \quad (2)$$

where; TA is Total Asset, TF is Total financing which comprise of ; F_{musha} is Total financing for *musharaka*, F_{mudha} is Total financing for *mudharaba*, F_{murab} is Total financing for *murabaha*, TI_s is Total investment which comprise of; TI_{mudha} is Total *Mudharaba* Investment, $TI_{nonmudha}$ is Total Non *Mudharaba* Investment and ε_2 is residual on uses of funds.

Equation (2) shows that Islamic bank allocates funds and makes investment decisions on the opportunity available, in order to generate value on the total funds (TS). Islamic bank is to decide how much its equity capital (i.e. $TE + TD_{IA}$) to allocate for financing, TF and to invest in Securities portfolio, TI. For financing, Islamic bank offers equity-based (i.e. *mudharaba* and *musyaraka* contracts) and mark up based (i.e. *murabaha* contract). Let the profit sharing ratio (i.e. *mudharaba* contract) be δ , so that Islamic bank (*rabbul maal*) gets a share of δ of the profit and $(1-\delta)$ is retained by the entrepreneur (*mudarib*). In *musyaraka* contract, it is assumed that β is a profit and loss sharing ratio; Islamic bank entitles β of any profit or loss and the entrepreneur $(1-\beta)$. In both models, δ and β are exogenously given based on pre-agreed ratio between contracting parties. On the other hand, for mark up based (i.e. *murabaha* contract), Islamic bank purchases an asset on behalf of an entrepreneur. Then, Islamic bank resells the asset to the entrepreneur at a predetermined price, D_1 that covers the original cost, D_0 and negotiated profit margin, α .⁹ In principle, the market value of debt may be lower than the face value of debt because the entrepreneur may default. On the other hand, Islamic bank has two options of securities portfolios; *Non-mudharaba* investment securities, $(TI_{nonmudha})$ and *Mudharaba* investment securities (TI_{mudha}) .

The balance sheet of the bank indicates that the Total asset ($TA = TF + TI + \varepsilon_2$) is equal to Total sources of funds ($TS = TE + TD_c + TD_{IA} + \varepsilon_1$) as stated in equation (3). It is also assumed that the operation of Islamic bank is not subjected to policy constraint, i.e. Reserve requirement.

$$TE + TD_c + TD_{IA} + \varepsilon_1 = TF + TI + \varepsilon_2 \quad (3)$$

If $\varepsilon_1 = \varepsilon_2$, the capital structure is fully matched to fund applications. However in the case of $\varepsilon_1 > \varepsilon_2$; then there are residual resources which are underemployed

⁸ In order to investigate whether PS or PLS and mark-up ratios do influence the profits earned by Islamic banks, we divide the financing and investment opportunities according to their contracts.

⁹Payment is made in the future in lump sum or in installments. Ownership resides with the bank until all payments are made.

during that period; if $\varepsilon_1 < \varepsilon_2$; then there is need for further sourcing of funds for deployment.

Given the above descriptions, Islamic bank maximizes profits as follows:

$$\begin{aligned} \text{Max } \Pi &= \text{TR} - \text{TC} \\ &= (\text{TY}_{\text{DIA}} - \text{OC}_{\text{DIA}}) (\rho) + (\text{TY}_{\text{E}} - \text{OC}_{\text{E}}) - (\text{NOC} + \text{Tax} + \text{Zakah}) \end{aligned} \quad (4)$$

Subject to a balance sheet constraint:

$$\text{TE} + \text{TDc} + \text{TD}_{\text{IA}} + \varepsilon_1 = \text{TF} + \text{TI} + \varepsilon_2 \quad (4a)$$

$$\Pi \geq 0 \quad (4b)$$

where $\Pi = \text{TR} - \text{TC}$, Total Net Profit after Tax and Zakah, Π is derived from Total Revenue minus Total Costs. $\text{TR} = (\text{TY}_{\text{DIA}} - \text{OC}_{\text{DIA}}) (\rho) + (\text{TY}_{\text{E}} - \text{OC}_{\text{E}})$, Total Revenue comprises of: (i) Total Income derived from investment of depositors' funds, TY_{DIA} from Financing, Investment in Securities and Other Income (YO) (e.g fee and commission). Thus, $\text{TY}_{\text{DIA}} = [\text{F}_{\text{musha}} (\beta_1) + \text{F}_{\text{mudha}} (\delta_1) + \text{F}_{\text{murab}} (\alpha_1)] + [\text{TI}_{\text{mudha}} (\delta_2) + \text{TI}_{\text{nonmudha}} (\alpha_2)] + \text{YO}$. The Net Total Income is net of Direct Operating Cost for investment accounts funds. Thus, Islamic bank entitles (ρ) for contribution of expertise in generating the Net Total Income' and (ii) Total Income derived from shareholders' funds $\text{TY}_{\text{E}} = [\text{F}_{\text{musha}} (\beta_3) + \text{F}_{\text{mudha}} (\delta_3) + \text{F}_{\text{murab}} (\alpha_3)] + [\text{TI}_{\text{mudha}} (\delta_4) + \text{TI}_{\text{nonmudha}} (\alpha_4)] + \text{YO}$ that comprises of income from Financing and Investment from Securities and Other Income, respectively.

Both Total Incomes derived from investment of depositors' funds and shareholders' funds are subjected to other expenses directly attributable to the investment of the depositors and shareholders' funds (represent expenses related to operational risk) + allowance for losses on financing (represent expenses related to credit risk); Direct Operating Costs which includes Profit equalization reserve and Loan provision, OC_{DIA} and OC_{E} , accordingly. Thus, Islamic bank entitles (ρ) of the Net Income is derived from investment of depositors' funds and Net Income is derived from shareholders' funds. $\text{TC} = \text{NOC} + \text{Tax} + \text{Zakah}$; Total Cost is equal to addition of Non Operating Cost (NOC) which includes Personnel Expenses and other Overheads Expenditures, Tax and Zakah due.

Next, this study uses *EVA* as method of measurement to capture value creation generated from the capital invested¹⁰ from the shareholders funds (TE) and investment account deposits (TD_{IA}). Following Fiordelisi and Molyneux (2010), the *EVA* for banking could be written as follows:

$$V = \Pi - k K \quad (5)$$

Equation (5) shows that V represents the value creation over the period (t) for bank (i). This value is calculated from the difference between Net Operating after Tax and Zakah profit (Π) and capital charge over the same period which can be derived from the multiplication of Invested capital (K) at time (t) and the estimated cost of capital (k).

¹⁰ See Uyemura et. al. (1996) and Fiordelisi and Molyneux (2010)

Since Islamic bank assumes the cost of capital is the actual realized returns on the projects investment. Hence, the price¹¹ of capital invested from the shareholders (TE) and investments account deposits (TD_{IA}) can be denoted as k_{psd} and k_{pse} , respectively. Thus, Islamic bank derives its *EVA* which can be written as follows in equation (6):

$$V = \Pi - k_{psd}(TD_{IA}) - k_{pse}(TE) \quad (6)$$

By substituting equation (4) into equation (6), it gives

$$V = [(TY_{DIA} - OC_{DIA})(\rho) + (TY_E - OC_E) - (NOC + Tax + Zakah)] - [k_{psd}(TD_{IA}) + k_{pse}(TE)] \quad (7)$$

The Hamiltonian is given by:

$$H(\Pi, K, k) = [(TY_{DIA} - OC_{DIA})(\rho) + (TY_E - OC_E) - (NOC + Tax + Zakah)] - [k_{psd}(TD_{IA}) + k_{pse}(TE)] + \lambda [TF + TI + \varepsilon_2 - TE - TDc - TD_{IA} - \varepsilon_1] \quad (7a)$$

or

$$H = (\Pi) + \lambda (L) \quad (7b)$$

where K is equal to $(TD_{IA} + TE)$ and k is k_{psd} for TD_{IA} and k_{pse} for TE .

From equation (7a), the following optimality conditions can be derived as follows:

$$\frac{\partial \pi}{\partial TY_{DIA}} = \rho \quad (8a)$$

$$\frac{\partial \pi}{\partial TY_E} = 1 \quad (8b)$$

$$\frac{\partial \pi}{\partial T_{DIA}} = -k_{ksd} - \lambda \quad (8c)$$

$$\frac{\partial \pi}{\partial TE} = -k_{pse} - \lambda \quad (8d)$$

$$\frac{\partial \pi}{\partial k_{psd}} = -TD_{IA} \quad (8e)$$

$$\frac{\partial \pi}{\partial k_{pse}} = -TE \quad (8f)$$

$$\frac{\partial \pi}{\partial TF} = \lambda \quad (8g)$$

$$\frac{\partial \pi}{\partial TI} = \lambda \quad (8h)$$

It follows immediately that $\frac{\partial TY_{DIA}}{\partial TF} = \lambda/\rho$. An increase in the Total Financing derives higher income to the investment account deposits. However, the increment depends on the predetermined ratio between Islamic bank and investment account depositors. The smaller of predetermined ratio for Islamic bank for its contribution of expertise, the higher is the income generated to the investment account depositors. Therefore, Islamic bank plays an important role to decide the predetermined ratio which entails a fair and justice distribution of value created from the financing

¹¹ See Bidabad et. al. (2008)

activities. For $\partial TY_E / \partial TF = \lambda$ shows that an additional unit of Total Financing generates additional unit of income for the shareholders. It can be interpreted that regardless the predetermined ratio, Islamic bank always benefits with higher Total Income, when the Total Financing increase. It is also true for Total Investment in Securities in which the results can be interpreted as for Total Financing. Thus, it can be concluded that if a smaller predetermined ratio entitles by Islamic bank, an increase in Total Financing or Total Investment in Securities generates higher income to the investment account depositors. Regardless of the predetermined ratio entitles by Islamic bank, an increase in Total Financing or Total Investment in Securities generates an additional unit to the shareholders.

This study proceeds to determine the value of *EVA* represented by *V*. First this value *V* is necessary to derive the Net Operating after Tax and Zakah profit (*II*) which represent the operational adjusted profit of the bank. It is very important to reflect the actual profit value based on current economic conditions. Net Operating after Tax and Zakah profit is the Net adjusted profit derived from the activities of the bank over the time period. The Net profit value can be obtained from the financial statement of the bank. However, the Net profit after Tax and Zakah from financial statement is non adjusted profit¹². Thus, for simplicity and due to availability of data, this study considers Loan loss provision for adjustment, following Bidabad (2008). In addition, this study also includes Profit Equalization reserve for adjustment. Second, this study defines capital invested as the shareholders funds (*TE*) and the deposit funds in Investment account (*TD_{IA}*)¹³. Finally, in this study, it is assumed that the opportunity cost of capital comprises; cost of the shareholders funds, k_{pse} and depositors funds, k_{psd} . These costs of capital represent the opportunity cost for each capital invested by shareholders and depositors of Investment funds, accordingly.

Hence, an empirical research structure is developed based on the above model to gauge the ultimate consequences on the adoption of Profit-Loss Sharing arrangement in Islamic banking models that create value to the shareholders and depositors of investment accounts using panel regression procedure.

4. Estimation and Data Description

The estimation model is developed to identify the factors affecting the value creation in Islamic banking which is represented by *EVA*. In addition, this Estimation model seeks to gauge the extent of the allocations of capital invested, Total Equity (*TE*) and Total Deposits of Investment accounts funds (*TD_{IA}*), in asset portfolios, namely, Financing and Investment Securities. This model explains the adoption of Profit-Loss Sharing arrangement and value creation, which represents by *EVA* in Islamic bank. In order to obtain robust results, the variables includes bank's specific variables and external variable as control variable in order to isolate the effects of bank characteristics on Islamic bank's value creation.

¹² There are four major adjustments that are common applied for determining *EVA* for banks, according to Uyemura et. al (1996), namely, Loan loss provision, Taxes, Non-recurring events and Securities accounting.

¹³ Bashir (2001) also treated deposits in Investment account as equity capital under the contract of PS. However, in conventional banking, capital invested is equity capital invested by shareholders and the deposits treated as leverage. Thus, the result, value of *EVA* is expected to be different (i.e. lower) since in Islamic banking the value of capital is larger.

Three main components that are expected to influence the value creation for shareholders and Investment account depositors for Islamic bank. First, Net operating profit (Π) in which it depends on the income derived from Shareholders' funds (TY_E) and Investment account deposits (TY_{DIA}); and costs structure of the bank, namely Operating cost (OC) and Non operating cost (NOC); second, Cost of capital that is refer to k_{psd} and k_{pse} for Investment account deposits and Shareholders' funds, accordingly. These costs of capital represent the opportunity costs of capital; and third, Capital invested which represented by Total Investment account deposits (TD_{IA}) and Total Shareholders' funds (TE).

In general, *EVA* function can be written as follow:

$$V = f(\Pi, k, K) \quad (9)$$

Beside capturing the value creation for its shareholders and investment account deposits in Islamic bank, this study also incorporates a set of variables that are expected to affect the value creation of Islamic bank as is found in the established empirical literature on the determinants of bank performance and profitability (e.g. Berger and Bonaccorsi 2006, Brissimis et. al. 2008, Fiordelisi and Molyneux 2010) and Islamic bank performance (e.g. Haron S. 2004, Hassan M. and Bashir A. 2003, and Sufian F. 2007). Thus, the profit function can be written as follows:

$$\Pi = f(\text{LSIZE}, \text{CAPS}, \text{LIQUIDITY}, \text{MDIA}, \text{NMD}, \text{FINM}, \text{FIM}, \text{FMU}, \text{FPLS}, \text{YBTD}, \text{YFP}, \text{RWTA}, \text{LGDPPC}) \quad (10)$$

However, previous studies on bank performance and profitability only focus on the determinants affecting profits. This study on the other hand includes factors affecting cost of capital and capital employed. These factors need to be incorporated in determine the value of *EVA*. In order to integrate all the variables that are believed to affect the value creation of Islamic banking, equation (10) is substituted into equation (9). Hence, the general estimation is shown in equation (11) as follows:

$$V = f(\text{LSIZE}, \text{CAPS}, \text{LIQUIDITY}, \text{MDIA}, \text{NMD}, \text{FINM}, \text{FIM}, \text{FMU}, \text{FPLS}, \text{YBTD}, \text{YFP}, \text{RWTA}, \text{LGDPPC}) \quad (11)$$

The estimated model specifies Islamic bank's value creation is a function of banks' specific factors, as internal factors and macroeconomic variable, as external factor. The bank specific variables include: bank's shareholder and investment account deposits value denote as (V) which is calculated using *EVA* measure comprising economic profits and the opportunity cost of capital. Two proxies for Islamic bank's shareholder and investment account deposits value denote, (V) proxy by *EVA* which are based on the opportunity cost of capital using 10-year mgs rate for long term, *EVAppmgs* and 3-month klibor rate for short term, *EVAppklibor*, respectively. Bank asset size (LSIZE) is represented by Natural logarithm of Total assets, Capital structure (CAPS) is obtained from the ratio of Total equity and reserve to Total assets. Liquidity (LIQUIDITY) is measured by Total cash and short term funds include Securities available for sale and trading as a percentage of Total assets. As for deposits structure, two variables are used as proxy: Total *Mudharaba* Deposits to Total assets (MDIA) and Non *Mudharaba* Deposits to Total assets (NMD). Both Total deposits include Deposits from customers and Deposits and placements of banks and other financial institutions based on *Mudharaba* and Non *Mudharaba*

contracts. The asset structure is represented by four variables: Total funds allocated in Non *Mudharaba* Investment in securities (FINM), Total funds allocated in *Mudharaba* Investment in securities (FIM), Total funds allocated in mark up financing activities (FMU) and Total funds allocated in Profit-Loss sharing financing activities (FPLS). All four variables are in percentages of Total assets. Meanwhile, income structure is represented by two variables; YBTD, that is Bank's share of income as a percentage of Total deposit of Investment account and YFP that is Income from financing activities as a percentage of Profit before Tax and Zakah. Finally, risk structure is represented by RWTa that is ratio of risk weighted asset to Total assets. This study also includes external variable, in order to isolate the effects of bank characteristics on Islamic bank's value creation. The external variable taken into consideration in the estimation is Gross Domestic Products per capita (LGDP/PC) represents by natural logarithm of Gross Domestic Products per capita. This variable is assumed to be a function of Islamic bank's value creation to its shareholders and Investment account deposits.

The bank specific data for the empirical analysis are from the particular banks' Annual Reports for five years, from 2005 to 2009. This study employs annual data for 18 banks comprises of 11 Islamic local banks and 7 Islamic foreign banks which includes Citibank Berhad. During the period of study, there had been a few mergers and acquisitions of commercial banks, affecting those banks which operate on Islamic window basis. Particularly, in 2008 Malaysia Islamic banking has observed some structural change since those banks that operate under Islamic banking windows, has been transformed to full-fledge banks. To account for mergers that have taken place within the sample banks, this study proceeds by using the data of anchor bank prior to merger. Meanwhile, the new Islamic banks upgraded from their Islamic banking operations are treated as a continuation from Islamic banking operations or windows. Thus, this study includes both full fledged and Islamic banking operations. The data of external variables are obtained from the publication of Central Bank Malaysia, 2009. Table 4.1 describes each variables employed in the study, Appendix A (A:1).

Table 4.2 in Appendix A (A:2), shows the results of the Skewness, Kurtosis and Jarque Bera for the data set. These results are to determine the normality of data set, in which normally distributed data set should be an efficient estimator, unbiased and consistent. For a normal distributed data set, the value of skewness is equal to zero, the value of kurtosis is three, the value of Jarque Bera is insignificant or a high value of probability and the value of mean is equal to the value of its median. The findings show that all the variables are whether skew to the left or right, except for the variable MDIA is approaching zero value. However, the kurtosis values for all variables are not equal to three. Most of the values of Jarque Bera are significant which implies that it rejects the hypothesis that the data set is normally distributed, except for variable MDIA which insignificant with probability value above 10%. The non-normality distributions of data set arise due to the presence of heteroscedasticity (Gujarati, 2003).

This study employs the panel data estimation. The main advantages of this approach, among others are controlling for individual heterogeneity, the larger number of data points, increase degrees of freedom and reduction of collinearity among explanatory variables. These factors might affect the efficiency of the econometric estimation (Baltagi, 2008). Furthermore, the use of panel data is believed to be appropriate for this study due to limited number of observations for several banks. For example, Al Rajhi Banking & Investment Corporation (Malaysia) Berhad and Asian Finance Bank Berhad are only commenced their Islamic banking

operations in Malaysia after year 2005. Since some data are not available for the two banks, at least one time period in 2005, thus the data cover a sample of 16 banks for balanced data and 2 banks for unbalanced data, which amounted to a total of 18 Islamic local and foreign banks.

The estimation proceeds as follows: First, the model is estimated using the Ordinary Least Squares (OLS). This estimation method assumes that all banks have the same behaviour in which it is assumed that the intercepts for the banks are identical, $\alpha_{it} = \alpha$. The assumptions of constant intercept and slope rejects any form of heterogeneity. However, if individual differences among banks are significant, the results from OLS specification disregard the heterogeneity of the parameters of interest. Since the initial findings of the data set indicate non normality distributions, thus Generalized Least Squares (GLS) estimation is likely to produce better estimation results. GLS estimation is also expected to overcome the issue of non-normality distributions of data set, which arise due to the presence of heteroscedasticity (Gujarati, 2003). However, both the none-effect OLS and GLS estimations ignore all individual differences among the banks. If individual differences among banks are significant, then the results from the none-effect GLS estimation disregard the heterogeneity. This estimation is unable to capture individual characteristics of Islamic banks.

Second, this study proceeds with both fixed effect and random effects models. The fixed effects model allows for the different intercepts among banks to consider the individuality of each bank, $\alpha_{it} = \alpha_i$, where $E(\alpha_i \varepsilon_{it}) \neq 0$. Meanwhile, the random effects model treats intercepts of an individual unit as random across larger population with constant mean value, $\alpha_{it} = \alpha + \mu_i$, where $E(\mu_i \varepsilon_{it}) = 0$. Thus, in the fixed effect model each cross section units has its own intercept value and while in the random effect model the intercept represents the variation from a constant mean value. Estimation results using fixed effect model and random effect model. Using the Wald coefficient, the Hausman test is conducted to choose a better model between the fixed effect model and random effect model. The result show that the null hypothesis is rejected that is the individual effect is correlated with the independent variables. Thus, the fixed effect is better than the random effect in this estimation process. The result of the Hausman test is shown in Appendix A (A:3).

Third, this study assigns cross section weight to take into account the presence of cross section heteroskedasticity in the estimation. It allows for a different residual variance for each cross section as each bank is assumed to have its different attributes. Due to the variety in balance sheet size in which the banks comprise of local and foreign Islamic banks, outliers are more likely to occur in the analysis. This problem is more common in cross-sectional data because cross sectional data usually deals with members of a population at a given point in time, which may be of a different size (Gujarati 2003). As a result, this study adopts White's method of covariance coefficient to produce robust error-term estimations. This study proceeds to include the term AR(1) to take care of autocorrelation problem. The AR(1) term is able to control for first-degree serial autocorrelation that the current financial performance is also for a significant part the result of the financial performance in the previous period.

Table 4.3 in Appendix A (A:4), shows the regression results for *EVAppmgs* and *EVAppklibor* as measures of value creation for shareholders and investment accounts deposits for Islamic banks. The comparative discussion of regression results for *EVAppmgs* and *EVAppklibor* as follows. For *EVAppmgs*, the regression results revealed that Non Mudharaba deposits accounts (NMD), Funds allocated for Non

Mudharaba Securities Investments (FINM) and Funds allocated for *Mudharaba* Securities Investments (FIM) are significantly and positively correlated. These results show that for deposits structures which are based on the contracts, *Mudharaba* deposits accounts (MDIA), Non *Mudharaba* deposits accounts (NMD), only Non *Mudharaba* deposits accounts (NMD) significantly creates positive value (*EVAppmgs*) to the banks. Since, Non *Mudharaba* deposits accounts (NMD) constitutes of a large amount of current and saving accounts, which is considered as a cheaper cost of funds. Thus, it is expected that more funds deposited into these accounts and contribute higher profit to the banks. Meanwhile, the regression results for *EVAppklibor* show that Non *Mudharaba* deposits accounts (NMD) and Funds allocated for *Mudharaba* Securities Investments (FIM) are significantly and positively correlated. The results show that for deposits structures which are based on the contracts, *Mudharaba* deposits accounts (MDIA), Non *Mudharaba* deposits accounts (NMD), only Non *Mudharaba* deposits accounts (NMD) significantly creates positive value to the bank as measured by *EVAppklibor*. This result is consistence as both measurement of value creation, i.e. *EVAppmgs* and *EVAppklibor*. This implies that, the deposit structure, Non *Mudharaba* Investment account create positive value creation as measured against shorter and longer terms of opportunity cost of capital employed. This finding supports the study of Haron (2004) on the Islamic banks, in which he found that Current account is the only variable among the deposits variables include savings and investment accounts, has a significant relationship with Income before Tax and Zakah.

It is interesting to note that both Funds allocated for Non *Mudharaba* Securities Investments (FINM) and Funds allocated for *Mudharaba* Securities Investments (FIM) are significant and create positive value of *EVAppmgs*. On the other hand, for *EVAppklibor* only Funds allocated for *Mudharaba* Securities Investments (FIM) is significant and create positive value. This implies that Fund allocated for Non *Mudharaba* Securities Investment does not significantly create value to the banks as measure of *EVA* against the opportunity cost of capital employed in a shorter term. However, this finding is contradicted with the finding by Haron (2004), he found that Total funds in investment activities as percentage of Total assets is significant and negatively related to the profitability ratio represented by Net Profit after Tax and Zakah to capital and reserve. He argued that the amount of funds channelled by Islamic banks into investment activities is relatively small. On other hand, the present study found that on average, Islamic banks in Malaysia allocate 15% of the funds for investment activities for both (FINM) and (FIM). A possible reason of a positive value creation is due to the fact that Islamic banks allocate the funds in shorter term of securities investment and Government Investment Issues, which are less risky investment securities.

The results also demonstrate that only Financing based on Mark up contract (FMU) is significantly and inversely related. For *EVAppklibor*, different result shows that both Financing based on Mark up contract (FMU) and Financing based on Profit Loss Sharing (FPLS) are significantly and inversely related. It is noted that Financing based on Profit Loss Sharing (FPLS) result higher reduction. The financing based on Mark up contract result less return to Islamic banks as it is a shorter term of investments. Profit-Loss Sharing arrangement, in nature does not generate immediate returns upon disbursement of funds. In addition, this study uses *EVA* a measurement of value creation which it depends on the Net profit from the financing activities. These findings are supported by the preliminary descriptive analysis in which most of Islamic banks in this study allocate more funds in financing on mark up contract

relative to the Financing based on Profit Loss Sharing contract. Some local banks such as Affin Islamic Bank Berhad and AmIslamic Bank Berhad and all foreign Islamic banks, except Kuwait Finance House and Citibank Berhad (Window operation) do not allocate their funds based on Profit Loss Sharing contract from 2005 to 2009.

For other specific banks and macroeconomic variables, only Banks' liquidity (LIQUIDITY) and Gross domestic products per capita (LGDPPC) are significantly affected *EVAppmgs*. Meanwhile, for *EVAppklibor*, only size of bank (LSIZE) is significant and positively affected *EVAppklibor*.

5. Conclusion

Islamic banks play a significant role, in accordance to *Shariah* to generate wealth for their shareholders. The adoption of Profit-Loss Sharing arrangement in Islamic banking models, as product innovations, leads to the improvement in cost efficiency. The ability of Islamic banks to acquire and utilize information through Profit-Loss Sharing arrangement is believed to minimize asymmetrical information and reduce transaction cost. Hence, this would generate a higher return, that is, value creation to their shareholders, Islamic bank and depositors of Investment accounts. Therefore, this study presents a theoretical model of Islamic bank that shows how Islamic banks are able to create value to their depositors and shareholders through the adoption of Profit-Loss Sharing arrangement. This study employs EVA as a measurement of value creation in the Islamic banking model. Later, this study utilizes the data of Islamic banks in Malaysia to empirically analyze whether Profit-Loss Sharing arrangement creates value to the shareholders of Islamic banks.

The findings show that theoretically, an increment of Total capital, which comprises of Total Shareholders' funds (TE) and Total Investment account deposits (TD_{IA}) allocated to the Total Financing and Total Securities Investment yields higher income to investment account depositors. However, how much Investment account depositors benefit from the higher income generated depends on the predetermined ratio between Islamic bank and Investment account depositors. The smaller the predetermined ratio for Islamic bank for its contribution of expertise, the higher is the income generated to the Investment account depositors. On the other hand, an additional unit of Total capital allocated to the Total Financing and Total Securities Investment generates additional unit of income for the shareholders. Therefore, Islamic bank plays an important role to decide on the predetermined ratio which entails a fair and justice distribution of value created from the Financing and Investment activities. In addition, regardless of the predetermined ratio, Islamic bank always benefits with higher Total Income, when the Total Financing and Total Securities Investment increase.

Nonetheless, empirical results show that among the deposit structures, only Non *Mudharaba* deposits accounts (NMD) significantly creates positive value to Islamic bank as measured by *EVAppklibor* and *EVAppmgs*. This result is consistent for both measurement of value creation against shorter and longer terms opportunity costs of capital employed. This suggests that Islamic banks utilize a lower cost of capital, as Non *Mudharaba* deposit accounts constitute a large amount of current and saving accounts. Next, this study finds that funds allocated in Securities Investment (FIM) using Profit-Loss Sharing arrangement is significant and create positive value of *EVAppmgs* and *EVAppklibor*. Although, this finding contradicts with those of the

earlier study, such as Haron (2004), it is believed that this is due to the fact that Islamic banks allocate funds in less risky investment securities such as Government Securities and shorter term securities. Finally, this study finds that Financing based on Profit Loss Sharing (FPLS) arrangement results in a reduction in the value of Islamic banks.

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APPENDIX A

A:1 Table 4.1 : Descriptions of the Variables

	Variables	Definitions	Descriptions
1.	V	<i>EVA</i>	Net Operating Profit After Tax and Zakah + Income attributable to <i>Mudharaba</i> Investment account deposits + (Loan loss provision-Profit equalisation reserve) – [mgs or klibor(Total Deposit Investment Account + Total Equity)]
2.	LSIZE	Bank Size or bank asset size	Natural logarithm of Total asset
3.	CAPS	Capital Structure	Ratio of (Total equity + reserves) to Total assets
4.	LIQUIDITY	Liquidity	Ratio of Cash and Short term funding to total asset
5.	MDIA	<i>Mudharaba</i> Deposits accounts	Ratio <i>Mudharaba</i> Deposit to Total deposit
6.	NMD	Non <i>Mudharaba</i> Deposits accounts	Ratio non <i>Mudharaba</i> Deposit to Total deposit
7.	FINM	Funds Allocated for Non <i>Mudharaba</i> Securities Investment	Ratio Total funds in Non <i>Mudharaba</i> Securities to Total assets
8.	FIM	Funds Allocated for <i>Mudharaba</i> Securities Investment	Ratio Total funds in <i>Mudharaba</i> Securities to Total assets
9.	FMU	Financing based on mark up contract	Ratio Total funds in mark up to Total financing
10.	FPLS	Financing based on Profit/Profit and Loss Contract	Ratio Total funds in PLS to Total financing
11.	YBTD	Bank's share of income from Investment account	Ratio of Bank's share of income to Total deposit of Investment account
12.	YFP	Income from Financing Activities	Ratio of Income from financing activities to Profit Before Tax and Zakah
13.	RWTA	Risk Weighted Asset	Ratio of Risk weighted asset to Total asset
14.	LGDPPC	GDP per capita	Natural logarithm GDP per capita

A:2 Table 4.2 : Descriptive Statistics

Variables	Mean	Median	Standard Deviation	Skewness	Kurtosis	Jarque -Bera
<i>EVAppmgs</i>	1355283	53523	6872443	5.2636	29.1973	2889.56 (0.0000)
<i>EVAppklibor</i>	997453	64555	5315026	6.0659	38.6817	5148.82 (0.0000)
Lsize	15.4703	15.6355	1.3954	1.7174	9.3190	187.511 (0.0000)
CAPS	0.6565	0.7412	0.2807	-1.6337	5.4721	62.9510 (0.0000)
LIQUIDITY	0.4142	0.3671	0.2595	1.6145	7.4396	103.401 (0.0000)
MDIA	0.4469	0.49440	0.2547	-0.2413	2.0248	4.4397 (0.1086)
NMD	0.3817	0.3588	0.2300	0.8169	3.3155	10.3834 (0.0056)
FINM	0.1088	0.0849	0.1187	2.8251	14.0945	581.299 (0.0000)
FIM	0.0507	0.0303	0.0746	3.3724	16.7464	879.210 (0.0000)
FMU	0.5235	0.5826	0.3097	-0.1254	1.8386	5.2938 (0.0709)
FPLS	0.0124	0.0000	0.0451	4.3402	22.1700	1660.64 (0.0000)
YBTD	0.2657	0.0165	1.1839	5.9511	39.8496	5623.32 (0.0000)
YFP	7.8085	0.5739	39.8237	6.4201	42.5086	6471.76 (0.0000)
RWTA	0.5795	0.5987	0.2303	-0.1983	2.9554	0.5772 (0.7493)
LGDPPC	9.2744	9.8170	2.2163	-3.8809	16.0713	866.635 (0.0000)

Note: Figure in parenthesis is the p value

A:3 *Hausman Test using Wald Coefficient*

Model	F- Statistics	Chi-Square
<i>EVAppmgs</i>	86.2216 (0.0000)	86.2216 (0.0000)
<i>EVAppklibor</i>	35.2514 (0.0000)	35.2514 (0.0000)

Note: The probability values (p) are in parentheses

The results of the Hausman test run on the random effect model. The Wald coefficients for *EVAppmgs* and *EVAppklibor* are 86.2216 and 35.2514, respectively. Meanwhile, the critical Wald value with thirteen degree of freedom with 5 percent significant level is 22.36. The null hypothesis is rejected, since the Wald coefficients are larger than critical Wald value. Thus, the random effects model would be inconsistently estimated and the fixed effects model would be the model of choice for both *EVAppmgs* and *EVAppklibor*.

A: 4 Table 4.3: Regression results for EVAppmgs and EVAppklibor

Dependent Variable:	EVAppmgs	EVAppklibor
LSIZE	28831.7 (31853.9)	73650.6*** (13124.2)
CAPS	154907 (175283)	109986 (135645)
LIQUIDITY	-234133** (103893)	57246.9 (126908)
MDIA	107810 (68440.3)	182856 (114217)
NMD	384228*** (78484.5)	438720*** (169921)
FINM	589311*** (195470)	155692 (101777)
FIM	169800** (87163.9)	492242** (249981)
FMU	-215072*** (39813.6)	-278544*** (84762.9)
FPLS	-103669 (247092)	-646056** (287151)
YBTD	198528 (189914)	214839** (93546.1)
YFP	-378.865*** (93.2939)	-3886.17** (1755.3)
RWTA	3139.02 (93001.2)	-61831.8 (86589.8)
LGDPCC	287484** (134927)	-247564 (368761)
C	-4183836*** (1099995)	115904 (3297187)
AR(1)	0.323731*** (0.0037)	0.069752*** (0.0027)
R ²	0.990673	0.985269
Adjusted R ²	0.982858	0.972927
Durbin Watson	2.637112	2.133021
F-Stat	126.7731	79.82953
Prob(F-stat)	0.0000	0.0000

Notes:

Figures in parentheses are standard errors values of the regression coefficients.

***, **, * denotes that the coefficient is statistically significant at 1 %, 5 % and 10 % confidence level, accordingly.