

## ECONOMIC VALUE ADDED MODEL FOR THE ISLAMIC BANK INVESTORS

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**Abstract:** *Islamic banking deposits are fundamentally structured in a different way than the conventional banking deposits. Each type of Islamic banking deposits, such as savings, demand and timed deposits are devised using the approved Shari'ah contracts like Mudharabah. Compared to conventional contracts, these contracts are based on the concept of a 'lender-borrower' relationship. Additionally, the Shari'ah-approved contracts feature the nature of risks and returns uniquely. This is especially the case for Mudharabah contracts (henceforth referred to as profit-sharing contracts). The paper develops a modified Economic Value Added model used as the investors' (shareholders and the profit and loss sharing fund providers) value added measurement. The model is still in its infancy and improvements and modifications are required. The study appeals in two different ways which are found in its scope and structure of the proposed Mudharabah contractor's Economic Value Added Model (EVA<sup>®</sup>). Compared to previous models, this paper makes adjustments to cater to problems relating to the accounting of the displaced commercial risks. The empirical findings indicate that adoption of such model will bring positive value added to an Islamic bank, as the model's testing and validation. It is also empirically evident that the Islamic banks need to extensively utilize such model in their operation for the purpose of achieving maximum value added for the equity and equity-like capital providers.*

**Keywords:** *Mudharabah-depositors, Shareholder-investors, Economic Value Added (EVA<sup>®</sup>) model, value-creation, Islamic Bank*

### INTRODUCTION

The principles of Islamic economic revolves around two major concepts, fairness and equity. These concepts are crucial in promoting harmonization among the entities of the entire economic system. One of the results of an imbalanced economy can usually be seen with discrimination looming freely in the society, where certain groups of opportunists exploit the lower class of income for wealth. Since the aim of Islamic finance is to curb socio-injustice, an alternative to banking activities has

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been promoted which includes special features like apportionment of a fraction of earnings to the poor through *zakat*, giving returns through *hibah*, not taking interest (*riba*) because it is believed to increase financial leverage to the needy for capital and so on. Interest forbiddance is the key characteristic setting the conventional and Islamic banking in two different continuums. Other than this, the Islamic bank operates based on Shari'ah<sup>1</sup> principles, where monetary transactions and banking activities follow closely these principles; (1) viewing money as a form of capital, (2) placing distinctions between the roles and responsibilities of the *Mudarib* (agent or the active partner of the business who are also known as the managers of the Islamic bank) and *rab'ul mal* (the capital contributor), (3) preference for risk sharing concept (this concept follows strictly the 'no payment to labors' system unless for the work rendered and that no reward is to be given for capital contributed other than for the part of risk assumed) and so on (Warde, 2010, p. 7-10). These principles have led to the different structures in the products and services offered between conventional and Islamic banks. Additionally, the core concept separating the two types of banks is the practice of interest based-lending by the conventional but not the Islamic bank. Depositors in the conventional bank are viewed as debt providers and are rewarded with prorated interest payments for the entire duration of deposit. With the forbiddance of interest by Islam, the depositors in Islamic banks are treated as capital contributors (Archer and Karim, 2009). This is justified by the Mudharabah-partnership concept of Shari'ah that determines the responsibilities of the agent (the Islamic bank) and the *rab'ul mal* (the capital contributor). The current paper is motivated to investigate this relationship through literature analysis and to propose a measurement method to quantify the economic returns net weighted average cost of capital for the equity capital contributor to include the Mudharabah-depositors (also known as the profit-sharing account holders (PSIAHs) and the ordinary share capital providers. Meanwhile, the model extends this measurement to capture problems that are related to the management of the profit-equalization reserve account, an account that was set out to deal with the displaced commercial risk in Islamic bank. An arbitrary example is provided in section 4 to demonstrate the model's application. Along with this example, a case study was performed on a full-fledged Islamic bank to validate the model. Data from the bank's interim financial reports were taken from periods ranging 2008 to 2012. The following section explains the Islamic deposit structures, types and their functionalities.

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1. The Islamic banks are required to comply with the principles of Shari'ah, which is also known as *Fiqh al-Muamalat* (Islamic rules on transactions) (Ibrahim and Hamid, 2007, p. 21). These principles guide the Muslims to path not only leading to Allah but are also believed as path shown by Allah through His Messenger, Prophet Mohammed (Kettel, 2011, p. 13).

### Profit Sharing Investment Account (PSIA)

Islam prohibits interest (*riba*) and thus, Islamic deposits structure varies from the conventional banks. In Islamic banks, the deposits accounts are governed by the Mudharabah concept that means a 'partnership between work and capital' (Archer and Karim, 2009, p. 301; Shari'ah standard 13, AAOIFI, 2008). Here, the Islamic bank acting as agent (or *mudarib*) contributes work to the business whereas the investor-depositors or Mudharabah depositors as *rab'ul mal* contributes their capital in return for any profit derived from the business. The profits are to be prorated according to the amount invested. However, should there be any loss; it has to be borne by the *rab'ul mal*. The Shari'ah forbids losses to be transferred to the *mudarib* unless the *mudarib* willingly waive part or the entire profit share<sup>2</sup> for the purpose of improving the *rab'ul mal's* return (p. 301). Generally, there are two types of PSIA: (1) Restricted and (2) Unrestricted Profit-sharing Investment Account (PSIA). The restricted PSIA or Special Investment Account (SIA) provides limitations to how the funds under this account can be managed (IFSB, 2005a). Such restrictions may include the provisions for the types of asset classes, the type of activity, geographical area so on (Archer and Karim, 2009). Therefore, these funds must be managed separately from other funds held by the Islamic bank. Conversely, the Unrestricted PSIA which is also known as the General Investment Accounts (GIA) in Malaysia (IFSB, 2005a) allows full discretion to the Islamic banks pertaining to how the funds are to be utilized. On the other hand, the Unrestricted PSIA are intended for high street retailers seeking for low-risk investment that are Shari'ah compliant. This account is managed with funds pooled from other accounts like the current accounts as well as the shareholders' funds (Archer and Karim, 2009). According to Mudharabah concept, the unrestricted PSIAHs are also the equity capital providers of the Islamic bank. It is crucial to ascertain the objective of the firm on whether it should be the maximization of the shareholders' wealth or the PSIAHs'. This is important because it underpins the kind of corporate governance that a firm should implement and the roles and responsibilities of its board of directors (Keay, 2008). In order to achieve the firm owners' wealth maximization objectives, it is important that we first determine who should be the owners of the firm (in this case the Islamic bank). For this reason, Table 1 is included to highlight the similarities shared by the shareholders and PSIAHs in Islamic banks.

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2. This share is viewed as the remuneration given by the *rab'ul mal* as compensation for managing the *rab'ul mal's* investments.

**Table 1**  
**Comparison between the characteristics of the Unrestricted PSIAHs (also known as the GIA holders) and the shareholders of an Islamic bank**

	<i>Unrestricted Profit-Sharing Account Holders</i>	<i>Shareholders</i>
Type of capital provided	Funds contributed are to be treated as equity capital <sup>3</sup>	The capital contributed by the shareholders is considered as equity capital (according to the revised IAS 1) (IFRS, 2008).
Agency relationship between the Islamic bank	The relationship between the bank ( <i>mudarib</i> or agent) and the Unrestricted PSIAHs ( <i>rab'ul mal</i> ) are based on Mudharabah concept where the <i>mudarib</i> provides work in managing the capital provided by the <i>rab'ul mal</i> (Archer <i>et al.</i> , 1998).	The relationship between the bank managers and the shareholders is in the form of agent-principal where the agent (the managers) are hired to run the business of the company on behalf of the principal or owners (the shareholders) Bringham and Ehrhardt, 2005).
Wealth objectives	They are also the equity investors who seek for appreciation in the value of their investments (managed by the <i>mudarib</i> ) compared to creditors who look for interest payments in return for capital provided. When the returns on investments are higher, it will positively affect the amount of profits to be distributed to this group of depositor. Besides, they will also prosper when the Islamic bank prospers. This is the same with their incentive that is being aligned with the shareholders through profits attributable to these two groups of equity providers (Ahmed and Khan, 2007, p. 312).	As equity capital providers, they look for dividends and the appreciation in the value of their investments reflected by the bank's share price to earn capital gains. The performance of the share price is positively related to the performance of the bank's management in generating free cash flows (Lewellen and Hunstman, 1970).

3. According to the International Accounting Standards (IAS) 32, the funds provided by the Unrestricted PSIAHs are to be classified as "Equity of Unrestricted Investment Account Holder" (Archer and Karim, 2009, p. 302).

<p>The concept of equity capital where it is treated as the 'cushion' to absorb risks of the firm (Admati <i>et al.</i>, 2010).</p>	<p>The funds provided by the Unrestricted PSIAAs serve as 'cushion' to absorb commercial risks and that these risks are akin to the equity risks in nature (IFSB, 2005a). For this reason, the assets funded under this account are to be excluded from the risk weighted capital ratio calculation (IFSB, 2005a)</p>	<p>Shareholders are the providers of equity 'cushion' that absorbs all different forms of risks faced by the bank (Admati <i>et al.</i>, 2010).</p>
<p>The relationship between capital provided and the market value of the Islamic bank</p>	<p>Study conducted by Shubber and Alzafiri (2008) showed that the size of the Mudharabah deposits impacts the market value of the Islamic bank positively thereby provides value adding to the bank.</p>	<p>The value of share capital provided by the shareholders is related directly with the market value of the firm. This is shown by the market capitalization formula where Market capitalization equals to the share capital multiply by the number of shares held in the market.</p>

Despite the similarities shown above, the PSIAHs as equity-like holders of the bank do not share voting rights like the shareholder-investors. One point that sets the clear distinction between the debt and equity capital providers is the relative value of their investment to the firm's value (Merton, 1974). The value of the debt is greatly subjected to the changes in the market interest rate and the credit ratings of the levered firm. The value of equity on the other hand fluctuates as the value of the firm changes over time. Like the equity capital providers, the size of capital provided by the PSIAHs also correlates with the Islamic bank's market value (Shubber and Alzafiri, 2008). Satisfying these criteria on a sufficient ground along with the theoretical justifications gathered in Table1 underlying the categorization of the capital provided by the Unrestricted PSIAHs, we can consider that the PSIAHs constitutes part of the Islamic bank's equity capital besides the shareholders.

However, a big share in the literature was dedicated for the development of performance measures that were either accounting-based (i.e. profitability ratios and Economic Value Added (EVA<sup>4</sup>) ratio or market-based like the market value

4. EVA<sup>TM</sup> is a performance measure founded by Stewart Management Services in 1993 by taking net operating profit after tax minus the cost of capital by both equity and debt providers of a company (Stewart, 1999).

added measures that considers only the shareholder-investors' wealth as the ultimate objective. Little attention was catered to the development of models to measure wealth created to the Unrestricted Mudharabah-depositors who are also the investors of the Islamic banks. Compared to previous models suggested by the earlier authors,<sup>5</sup> this paper extends the EVA model that measure wealth added to the equity providers of the Islamic bank (through the MUDVA function) with an additional adjustment made to the displaced commercial risk (DCR<sup>6</sup>) before arriving at profit attributable to depositors. Similarly, the paper considers value added for the two types of equity contributors suggested by the Muda *et al.* (2011) and Bidabad and Allahyarifard (2008) with additional adjustment made to the income attributable to the depositors in order to improve the Mudharabah-Value added (MUDVA) model. According to Chen and Dodd (1997), any measures connecting profits and the cost of capital of a company should be classified as EVA measures.

The remaining sections of the paper is organized as follow; with the following section covering the review of previous studies, Section 3 describes the data employed, Section 4 explains the model development, Section 5 validates the model with financial data from Bank Islam Malaysia Berhad and Section 6 concludes the paper with suggestions and implications for future researches.

### Literature Review

Ample works have been carried out to measure the performance of Islamic banks which were mainly using accounting or market based measures for shareholders. Few studies were taken to develop measures that account for the value added to the equity-like holders (i.e. Investment account holders or the PSIAHs) of the Islamic financial institution. The idea to develop measures to capture wealth generated by a company to its shareholders dates back in 1993 when Stern Steward Co. made an impactful contribution through the EVA<sup>TM</sup> model. Chen and Dodd (1997) reported that although the notion of EVA started in 1989 (by Finegan, 1989 in Chen and Dodd, 1997, p. 318), it only gained popularity when large corporations like Coca-Cola, AT and T began to applause its usefulness and comprehensiveness in measuring the managements' performance. In their studies, Chen and Dodd (1997) tested whether the EVA model was as good as claimed by most studies in predicting the volatility of a company's stock return.

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5. It is within the authors' knowledge till date that prior modifications done to suit the Islamic banking context was done by Muda *et al.*(2011) and Bidabad and Allahyarifard (2008).
  6. Readers are advised to refer to "Ahmed, H., and Khan, T. (2007). Risk management in Islamic banking. *Handbook of Islamic Banking*" for further readings on the management of displaced commercial risk in Islamic banks.

Their findings were supportive to the findings made by earlier studies. Other than this, they also found that the EVA measures have better explanatory power on the company's stock movement than the traditional accounting profit measures. Even though there were many advocating the use of EVA as a measure of shareholders' wealth creation, Fernandez (2001) argued that it should be used cautiously. The author tested the correlation between EVA and other accounting data with the market value added (MVA) to represent shareholders' value using data from Stern Stewart for 19 companies in 1997. He reported that MVA is a better indicator of shareholder value creation as the data taken to derive the MVA reflects the market value of these shareholders' returns. In contradiction, the EVA measures rely on historical data which was criticized for not being able to represent shareholder value creation effectively. He also added that companies with positive shareholder value added could at the same time carry negative values of EVA. In another study conducted by Hillman and Keim (2001), the market value added was used as an operationalized measurement for the shareholder value added (p. 129). Along with these studies, others who favored the use of market value added as an indicator of shareholder wealth creation were Srivastava *et al.* (1998) and Fernandez (2001). In some cases, the formula which was used to calculate EVA (the difference between net operating profit and cost of capital) was being restated by Largani *et al.* (2012) as shareholders' value added (SVA). In their paper, Largani *et al.* (2012, p. 491) wrote,  $(SVA = NOPAT - (WACC \times CAPITAL))$ , however was misrepresentative because this measure was a trademark of Stern Stewart Management Services to calculate the EVA (Chen and Dodd, 1997; Stewart, 1999).<sup>7</sup>

Nevertheless, other researchers who preferred the used of EVA as a useful and effective performance measure for the company's management were plentiful. The benefits of EVA were further elaborated by Sharma and Kumar (2010) who gathered 112 studies published on such works from 1994 to 2008. They have also quoted a statement by Marshal (1980 in Sharma and Kumar, 2010, p.201) that EVA represents marginal returns earned by an investment after covering market returns required by the shareholders. In other words, it is a measure of profitability net cost of capital. Sharma and Kumar (2010) have also indicated that the EVA measures true economic profit generated for the shareholders and lenders of a company. They grouped previous studies that reported the positive associations between MVA and EVA and among the list were Lefkowitz (1999), O'Byrne (1996), Uyemura (1996), Peterson and Peterson (1996) (in Lehn and Makhija, 1997). Analyzing the mixture of propagations made on EVA, this paper resorts to the religious definition for EVA so that a measure can be formulated to calculate the value added to the Mudharabah equity capital contributors.

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6. <http://www.sternstewart.com/?content=proprietaryandp=eva>

The equity capital is being termed differently in both Islamic and contemporary finance. As mentioned earlier, the Investment Account Holders are also considered as the equity capital providers to an Islamic bank. Referring to the above reviews made in section "Profit Sharing Investment Account", we can include the PSIAHs' value generation in the MUDVA model together with the calculation of value added to the shareholders. Advocates who argued on the rationality of EVA as a measure the wealth created to shareholders can relax their shoulders by looking into a different perspectives of religiosity and value creation. Warde (2010) stated that the profit/loss and risk shared under the Mudharabah contract by an Islamic bank should theoretically promote social and economic justice. In return, this (the profit and loss sharing) concept should promote value creation to depositors and shareholders which would then lead to wealth creation to the economy as a whole. Having been analyzed the EVA from a different angle, the current study extends the EVA model to reflect the value added to PSIAHs and shareholders with adjustments made on the value of profit equalization reserves that was taken out before arriving at profit attributable to depositors of the Islamic bank. Farook *et al.* (2012) stated that the profit equalization reserve (PER) and investment risk reserve (IRR), like the conventional revenue reserves (i.e. retained earnings) that are taken to smooth dividend payments, were taken to pay the depositors under the Mudharabah contract to enable a steady rate of return that will help reduce displaced commercial risk in Islamic banks. The MUDVA model in this paper uses similar concepts utilized in earlier researches by Muda *et al.*, (2011) who extended the study by Bidabad and Allahyarifard (2008). In modeling EVA for the profit and loss sharing account holders as well as the Islamic bank shareholders, Muda *et al.* (2011) matched the sources and returns generated by the use of these funds to determine their cost of capital and the associated amount of returns for these group of capital providers, which was somewhat similar to Bidabad and Allahyarifard's (2008) concept. The concept shall be repeated in this paper although adjustments were made in the derivation of earnings for the PSIAHs and shareholders.

### **The Data**

This empirical paper is based on analysis using inputs from internal and external environments of Bank Islam Malaysia Berhad (BIMB). Internal data were collected from the digitized interim financial statements of BIMB starting year 2008 to 2012, thus constituting to a number of 20 observations. These data was used to validate the MUDVA model. Before validation, data check was performed to ensure that the periods reported are consistently representing quarterly performance throughout the years observed. Rectified inconsistencies were quickly remedied using prorating techniques to obtain a standardized form of data reflecting only quarterly financial figures. External data were sourced from DataStream as proxies



to the bank's economic environment. For example, quarterly stock prices for BIMB and KLCI were obtained to compute the cost of equity for the MUDVA model. This method was consistent with King (2009), Green *et al.* ((2003) in King, 2009, p. 62) and so on. King (2009) stated that the CAPM method for a firm's (in this case is the Islamic bank) cost of equity calculation was reasonable following the findings documented by Barnes and Lopez (2006). The CAPM model used to derive the cost of equity for the shareholders ( $\gamma_{e,t}$ ) of BIMB are as follows;

$$\gamma_{e,t} = k_{f,t} + \beta_{BIMB,t} (k_{m,t} - k_{f,t}) \quad (1)$$

Where  $k_{f,t}$  represents risk free return of the 3-Months Malaysian Treasury bills investment at time,  $t, \beta_{BIMB,t}$  the covariance of the bank's stock return with FBM KLCI stock index return in time, and the market risk premium represented by the incremental return that investors require from holding BIMB's stock rather than the assumed risk-free Malaysian 3-Months T-bill is written as  $(\beta_{BIMB,t}(k_{m,t} - k_{f,t}))$  (Campbell *et al.*, 1997). The cost of equity contributed by the Unrestricted and Restricted PSIAHs was calculated by assuming a benchmark represented by the two-asset portfolio that would be held by a conservative investor-depositor who is seeking for a Shari'ah complying investment (Refer equation 8). After that, the cost of Unrestricted and Restricted PSIA were adjusted to reflect quarterly costs so that the quarterly MUDVA can be obtained. The composition of the opportunity cost for the Restricted and Unrestricted PSIAHs is shown in the following part of the paper. Whereas, details of the key financial ratios taken for the MUDVA regression function is given in Table 4 in Appendix. The next section of this paper explains the construction of the MUDVA model to measure the wealth added to the Mudharabah capital providers (both Unrestricted PSIAHs and shareholders) of the Islamic bank.

### The Model

Earlier models by Bidabad and Allahyarifard (2008) and Muda *et al.* (2011) were based on the economic value added (EVA) model. Compared to economic value added model, the Islamic profit model considers prohibition of interest (*riba*). This prohibition leads to the difference between the deposit structure of the Islamic and conventional banks. When managing funds under the deposit accounts, Islamic bank considers only investments that are Shari'ah permissible. Unlike their conventional counterpart, the Islamic bank does not provide debt-like lending (i.e. conventional mortgage loans). For this reason, the value added to this type of capital provider should be evaluated differently by incorporating the important Islamic concepts that also affects the value of this group of capital providers. Hence, the motivation of this paper is to develop the Mudharabah-value added

model (MUDVA) based on the religious perspective while continuing the works by previous papers by adding improvements to mirror the current accounting issues on the reporting of PER in measuring wealth added to the equity capital providers (the PSIAHs and shareholders) of the Islamic bank. The model considers the notion of excess earnings to the equity holders after its equivalent cost of capital. This model assumes that the bank can only resort to equity financing for business funding within an interest-free economy (Mirakhor, 1996). Assuming only these two sources of financing (Unrestricted PSIA and shareholders' capital) equation (2) for the total source of Islamic bank funds can be derived;

$$TS_t = TD_{SIA,t} + TD_{PSIA,t} + TE_t + \varepsilon_t \quad (2)$$

Where denotes total source of funds at time,  $t$ ,  $TD_{SIA,t}$  and total deposits from special investment account and total profit sharing investment account deposits at time  $t$ ,  $TE_t$ , total shareholders' equity at time, and other source of financing like preferred stocks at time  $t$ . This equation is somewhat similar to the one derived by Muda *et al.* (2011) and Bidabad and Allahyarifard (2008). The scope of the paper considers only equity sources of finance for the Islamic bank in the MUDVA performance indicator development process. Hence, the preferred stock is not considered because it is not a type of Mudharabah financing. This was explained using the concept of *tanazul* or waiver (Warde, 2010). Warde (2010) included that under the *tanazul* concept; the preferred stockholders surrender or waive their rights to share of profit based on the Musharakah partnership agreement. Like Muda *et al.* (2011) and Bidabad and Allahyarifard (2008), letting the total sources of funds equal to 1, the ratios of each component of funds above can be shown as

$$\omega_1 + \omega_2 + \omega_3 = 1 \text{ with } \omega_1 = \frac{TD_{SIA,t}}{TS_t}, \omega_2 = \frac{TD_{PSIA,t}}{TS_t}, \text{ and } \omega_3 = \frac{TE_t}{TS_t}; \text{ and that when } \varepsilon_t = 0,$$

the bank do not engage other sources of financing like preferred stocks, or otherwise  $\varepsilon_t \neq 0$ . Then, these sources of funds were matched with their uses. The possible areas for funds deployment that are Shari'ah compliant includes investments in permissible assets, assets in the form of cash and short term funds, financing, advances and other loans, purchase of plant, property and equipment, direct and indirect operating expenses, tax zakat and so on (Warde, 2010). The Islamic bank is required to report the performance and management of these funds in return for the capital contributed. Any action taken on behalf of the capital providers by the managers will affect the value of their investment. Henceforth, profits generated from the above uses of funds should be considered for the MUDVA model.

As mentioned, the originality of the MUDVA model retains in its account for the displaced commercial risks (DCR) before arriving at the profits attributable

to the Unrestricted PSIA. The central bank defines DCR as risk that arises due to the management of assets on behalf of the PSIAHs (IFSB, 2005b). In the highly competitive banking environment, Islamic banks are pressured to attract and retain a market share from their conventional competitors. This pressure motivates the Islamic banks to pursue several options that are allowed by the central bank in managing the rates offered to their PSIAHs when the actual return from the management of the assets under this account fall below the market. This is because depositors who benchmarked their returns with the market expect to receive at least parity rates or higher. Consequently, the urge to maintain this parity as well as to ensure smoothening of these returns, the Islamic banks chose to forgo its share of profit or absorb those losses. This squeezes the size of profit enjoyed by the bank (which is then being transferred to the profit share by the shareholders of the bank). Other than forgoing part or all profit share, the central bank allows the management of DCR to be done through the maintenance of the PER and IRR which is through forfeiting the percentage of profit shared between the Islamic bank and the PSIAHs (or also known as the Investment Holders). This objective can also be met by transferring some portions of the shareholders' current or retained profits to increase the share of profit by the PSIAHs (IFSB, 2005b). For an example, BIMB has declined the maintenance of PER in year 2010. Instead, the bank opted to forgo all or part of the bank's share of profit as *mudarib* by managing the percentage of profit sharing, that is divided between the bank (shown as part of the current or retained earnings) and the PSIAH through *hibah* or gift based on *tanazul* (a concept of waiver entitlement) (BIMB, 2012). Noting the current accounting issues in treating the PER accounts, several articles commented on the rationality in viewing the PER as a liability or an expense item. One of these arguments was the wide practice of debiting the amount of PER as an expense in the bank's income statement, followed by a credit transaction which reflects PER as an item of liability stated under the International Accounting Standards 139 (PWC, 2011). In order to solve this issue, the conference proceedings on Accounting Standardization Issues in Islamic Finance on 19<sup>th</sup> July 2011 by Malaysian Accounting Standards Board (MASB) proposed the 'ring-fencing' method on the retained earnings to set aside an amount for the DCR management and that it should be closely monitored by the central bank authorities to avoid potential manipulation of profit by the management (PWC, 2011). This method is in line with the general accounting principle while still being able to meet the objectives of DCR management. Having analyzed the issues above, this paper suggest the following adjustment to the proposed MUDVA model by adding back the PER values before deriving at the income attributable to the PSIAHs and shareholders. This MUDVA equation (6) is given below;

$$MUDVA = [(TDE \pm PER) \alpha + (TDE \pm PER) (1 - \alpha - \beta) - (OC_c + Tax + Zakat)] - [TMC \times WACMC] \quad (6)$$

Where,  $TDE$  = Total Distributable Earnings

$PER$  = Profit Equalization Reserve

$$\alpha = \frac{TY_{PSIA}}{IAM}$$

$$\beta = \frac{TY_{SIA}}{IAM}$$

$OC_e$  = Non-Operating Costs

$TD_{PSIA}$  = Total Investment Account Deposits

$TD_{SIA}$  = Total Special Investment Account Deposits

$TE$  = Total Equity

$TMC = TS$  = Total Mudharabah Capital =  $TD_{SIA} + TD_{PSIA} + TE$

$WACMC$  = Weighted Average Cost of Mudharabah Capital

$$= (\omega_1 \times \rho_{SIA}) + (\omega_2 \times \rho_{PSIA}) + (\omega_3 \times \gamma_E)$$

The cost of capital for the Mudharabah deposit holders of both the Unrestricted PSIA ( $\rho_{SIA}$ ) and Restricted PSIA ( $\rho_{PSIA}$ ) holders are calculated using the portfolio returns of a two asset portfolio that would be held by a conservative Muslim investor who seeks for Shari'ah complying investments. The conservative assets portfolio includes the FBM Emas Shari'ah Index<sup>7</sup> and the General Investment Account (GIA) of a typical Malaysian Islamic bank. Assuming that a rational investor will seek for diversification in his or her investment, the two assets portfolio is formed as a benchmark or the opportunity cost forgone by the investor that would have otherwise not invested in the Mudharabah deposit accounts offered by the Islamic bank in this case. Besides the data of these two investments are easily available and thus, returns comparison can be done more easily. Another approach to calculating the cost of Islamic capital was proposed by Mirakhor (1996)<sup>8</sup> based on the pricing of the sources of capitals (the retained earnings and stock financing) using the

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7. FBM Emas Shari'ah Index was launched in 22 January 2007. It provides investments that are Shari'ah compliant and it can also serve as a benchmark against other Shari'ah return investments. The constituents within this index are screened according to the Malaysian Securities Commission's Shari'ah Advisory Council (SAC) methodology (Bursa Malaysia, 2013; FTSE, 2007).

8. Readers are advised to refer to Mirakhor, A. (1996), "Cost of capital and investment in a non-interest economy", *Islamic Economic Studies*, Vol. 4 No. 1, pp. 35-46 for details on the calculation of the opportunity cost for an unlevered firm.

Tobin's q method. However, this approach is not used in the calculation of the cost of PSIA financing because a relatively simpler and generalizable approach is available by taking the returns of the two-asset portfolio mentioned earlier. This method frees the need to resort to higher levels of data like the replacement cost of equity used by the interest-free institutions. Furthermore, the author's model includes only retained earnings and stock financing as sources of capital. The Mudharabah deposit financing was not considered by the model despite the fact that the funds are also used for investment purposes by the Islamic bank. Besides, using the two-asset portfolio's return to measure the PSIAHs' opportunity cost for investment provides a Shari'ah compliant point reference for returns because the references may not be known when the investment is taken until the need for such investment performance comparison arises. The suggestion was also included by Toumi *et al.* (2011) who agreed that the investment benchmark by the PSIAHs may not be known at the time when the Mudharabah contract was taken. Noting these, the approach for calculating the cost of capital for the MUDVA model suggested in this paper is rather similar to the model provided by Shubber and Alzafiri (2008) using weighted average techniques on the cost of a firm's deposits, saving accounts and investment accounts. The formula used to calculate the two-asset portfolio return is shown below;

$$R_{Emas} = \ln \left( \frac{P_t}{P_{t-1}} \right) \quad (7)$$

$$R_p = w_{Emas} R_{Emas} + w_{GIA} R_{GIA} \quad (8)$$

$R_{Emas}$  represents the return of the FBM Emas Shari'ah Index obtained by performing a natural log on the price of the stock index ( $P$ ) over the price of the previous stock index ( $P_{t-1}$ ) (Ortas and Moneva, 2013), and the portfolio's return ( $R_p$ ) is obtained by assuming an equally weighted asset allocation for the FBM Emas Shari'ah index ( $w_{Emas} R_{Emas}$ ) investment and the Islamic General Investment Account ( $w_{GIA} R_{GIA}$ ). Taking these returns as the investment benchmark by both Restricted and Unrestricted PSIAHs, we can let the above equation (8) to be equal to;  $\rho_{SIA} = \rho_{PSIA} = R_p$  with  $\rho_{SIA}$  and  $\rho_{PSIA}$  representing benchmarked returns of the Special Investment Account holders and PSIAHs for taking up the Mudharabah deposits with the Islamic bank.

On the other hand, the method used to calculate the cost of equity for the Islamic bank shareholders is based on the capital asset pricing model (CAPM) represented in equation (1) earlier. An important assumption to this model is any necessary management costs used to manage the PSIAHs' funds are deducted

before the income attributable to the depositors and shareholders. Besides, the MUDVA model considers only equity capitals governed by the Mudharabah concept. The model specified in equation (6) can be easily computed using items from the balance sheet. A numerical example is provided below to illustrate the MUDVA model's application (following equation 6);

For instance, if;

**Table 2**  
**Numerical examples to illustrate the MUDVA calculation based on equation (6)**

<i>Items</i>	<i>Numerical examples</i>	<i>Items</i>	<i>Numerical examples</i>
Risk premium	4%	$TD_{PSIA}$	RM2.23632 million
Risk free rate	3.5%	$TD_{SIA}$	RM8.423934 million
$TDE$	RM2,955,463	$TE$	RM2.792193 million
$PER$	RM695,540	$TMC$	RM12.897 million
$IAM$	RM2,635,362	$WACMC$	$(0.6532 \times 0.1172) + (0.216506 \times 0.093) + (0.1734 \times 0.1172) = 0.117013$
$TY_{PSIA}$	RMRM1,495,568		
$TY_{SIA}$	RM26,380		
$\alpha$	$1495568/2635362 = 0.5675$		
$\beta$	$26380/2635362 = 0.01001$	Tax	RM1,618,712
$\beta_{CAPM}$	1.45	$TA$	RM32.1864 million
$OC_e$	RM424,800	Zakat	RM19,092
$\gamma_e = \text{Risk free rate} + \beta_{CAPM}$ (Risk premium)	$3.5\% + 1.45(4\%) = 9.3\%$	$TS = TMC$	$TD_{SIA} + TD_{PSIA} + TE = RM 12.89656 \text{ million}$

$\rho_{PSIA}, \rho_{SIA}$   
 Represented by the opportunity cost of the two-asset portfolio investment returns.

Asset 1:

With the closing price indices of the FBM Emas Shari'ah Index for year,  $t$ ,  $P_t = 10374.98$  and previous year,  $P_{t-1} = 8507.61$ , the return for FBM Emas Shari'ah Index can be calculated using natural log on the two prices.

$$R_{Emas} = \ln\left(\frac{P_t}{P_{t-1}}\right) = \ln\left(\frac{10374.98}{8507.61}\right) = 0.19844$$

<p>Assuming that both the PSIA and SIA account holders are conservative investors, the assets can take the form of the FBM Emas Index and Industry average General Investment Account-I.</p>	<p><i>Asset 2:</i> Assuming that the PSIA investors benchmark similar products available in the industry, therefore the second asset for a conservative investor's portfolio can be in the form of any other General Investment Account-I offered by the Islamic banks on average in Malaysia. Therefore, the nominal rate of return for GIA-I investment currently being offered in Malaysia is 3.6% (<math>R_{GIA}</math>). <i>Two-assets portfolio return:</i> Thus the return of this two asset portfolio (given equal portion of asset allocation for each investment) or the opportunity cost of PSIA and SIA holders, <math>\rho_{PSIA} \rho_{SIA} = (19.844\% \times 0.5) + (3.6\% \times 0.5) = 11.45\%</math></p>
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**Note:** The above figures are numerical examples to illustrate the MUDVA calculation based on equation (6).

The MUDVA value can be obtained by substituting the information above into equation (6);

$$MUDVA = [(RM2,955,463+RM695,540)(0.5675)+(RM2,955,463+RM695,540)(1-0.5675-0.01001)-(RM424,800+RM1,618,712+RM19,092 )]-[RM12.89656 \text{ million} \times 0.117013]=RM42,784.94$$

From the above example, the calculated MUDVA is positive RM42, 784.94. This value represents positive wealth added to the Unrestricted PSIAHs and the Islamic bank shareholders. If the MUDVA shows a negative figure, it means that the two types of equity capital providers' wealth are being wasted or that it will lead to a decrease in the market value of the bank's share performance (Grant, 2003, pp.68; Grant, 1996).

In order to further validate the MUDVA model, a case study using the quarterly financial data starting 2008 to 2012 of BIMB is performed so that we can observe the bank's quarterly performance based on MUDVA. Longer data series can be created using these quarterly data sets. Next, the MUDVA values were tested on its relationship with other BIMB's internal and external variables (see Table 3 in Appendix for details to each variable listed in equation 9). These ratios represent the bank's capital structure, liquidity, profitability and the external environment using economic indicators such as the Malaysian base lending rate, exchange rate and the risk-free rate of return of the 3-months Malaysian Treasury bill. The external variables are included to eliminate effects that might have contributed to the volatility in the MUDVA and also to promote better findings and robust results. Other factors contributing to the variation of the MUDVA that were not

identified in this model represented by  $\varepsilon_t$ . The resulted regression function is as follow;

$$MUDVA_t = \alpha_t + \beta_1 MUCAP_t + \beta_2 EQTNL_t + \beta_3 MDIA_t + \beta_4 TETA_t + \beta_5 CACL_t + \beta_6 CST_t + \beta_7 NLTA_t + \beta_8 LCACL_t + \beta_9 FFIN_t + \beta_{10} ROE_t + \beta_{11} EPS_t + \beta_{12} EXRET_t + \beta_{13} BLR_t + \beta_{14} EXCHG_t + \beta_{15} MTBS_t + \varepsilon_t \quad (9)$$

### Model Validation

The mean value for MUDVA generated to both PSIAHs and the shareholders is negative. Although the computed values in general consist of a mixture of both negative and positive figures, there are more positive than negative MUDVA. The illustration is given in the scatter graph and boxplot diagram in Figure 1. The negative mean value was mainly the consequence of the extreme negative outliers in 2010(Q4), 2011(Q4) and 2012(Q4). According to local sources, the bank reported quite significant low profits in the fourth quarter of year 2010 (The StarOnline, August 31, 2010). The descriptive summary for other variables are shown in Table 3. The MUDVA, EQTNL, MDIA, TETA, CACL, FFIN, and EPS are abnormally distributed with significantly large Jacque Bera results. These are consistent with the high values of kurtosis and the leptokurtic characteristic of the variables. On the other hand, the CST, NLTA, LCACL, ROE, EXRET, MBLR, EXCHG and MTBS are normally distributed with somewhat mesokurtik and uniform distribution. Among all variables, the EQTNL holds the largest Jacque Bera results. The values of EQTNL are distributed around its mean value therefore causing a highly peaked and sharp distribution. These values were also quite consistent throughout periods 2010(Q2) to 2011(Q3) with standard deviation of 7.0143%. The descending order to the variables in terms of the Jacque Bera results continued with the second largest normality value obtained for TETA, FFIN, MDIA, MUDVA, CACL and EPS. In order for the t-statistics and the p-values to be valid, the exogenous variables must be normally distributed. For this reason, the regression is performed using the normalized MUDVA, EQTNL, MDIA, TETA, CACL, FFIN and EPS. The resulting model demonstrates high predictive ability with  $R^2$  results showing 0.9947 and adjusted  $R^2$  results of 0.9749. The model also exhibited an F-statistic of 50.28362 which is highly significant even at 1% level of significance. The internal factors that are significantly affecting MUDVA are the MUCAP, MDIA, ROE, EPS, EXRET, and external are MBLR, EXCHG, and MTBS at the levels of 1%, 5% and 10% significance. Table 3 displays the coefficients for the constant and exogenous variables.

### Conclusion and Implications

The variables that contribute significantly to the volatility in MUDVA are MUCAP, MDIA, ROE, EPS, EXRET, MBLR EXCHG, and MTBS. Out of these variables, the



internal factors that the management must consider in maximizing the value added to the Mudharabah capital contributors are the size of the Mudharabah capital raised throughout the business horizon (MUCAP), the income to be apportioned to the Unrestricted Profit Sharing Account holders (also known as GIA holders in the Malaysian banking context), the size of profit generated from the shareholders' equity (ROE) and the income made eligible per one shareholding by the investors of the Islamic bank (EPS). The positive correlation between Mudharabah capital by the PSIAHs and the market value of the Islamic bank was also proven in a study conducted by Shubber and Alzafiri (2008). All external variables under study explain the changes in MUDVA thus, implying that the value added to the Mudharabah capital contributors is also dependent on the current economic performance. The bank should devise their strategic plans based on the movement of the economy while setting to improve or maintain the value added to their Mudharabah capital providers. The MUDVA computed for Bank Islam Malaysia Berhad (BIMB) also gave investors the insight that the bank is continuing to add value for its investors. Although so, the investors must also pay attention to the movement of the entire market in general. The bank's overall performance based on the MUDVA is also highly affected by the amount of revenue generated and efficiency in expenses management in return for an improved profit and higher MUDVA. The earlier conjectures based on the observed MUDVA characteristics imply that the MUDVA could be used as the performance indicator for management of the Islamic banks. Apart from the revenue and expense items, Muda *et al.* (2011) included that the value added to shareholders and the unrestricted profit sharing account holders (PSIAHs) is also affected by the predetermined profit ratio between the Islamic bank and the Unrestricted PSIAHs. The weakness of the current study is the limited sample taken for the model's validation. The research suggests future works to include larger samples for better testing and validation. Other than these, improvements to the model by incorporating variables that reflect the efficiency of the bank's asset and liability management would provide information about the direct relationship between MUDVA and asset and liability management efficiency under efficiency studies as done by researchers like Fethi and Pasiouras (2010), Drake *et al.* (2006) (in Fethi and Pasiouras, 2010), Mercan *et al.* (2003), and so on. More readings can be obtained from the literature reviews compiled by Fethi and Pasiouras (2010).

## APPENDIX

**Table 3**  
**The exogenous variables**

<i>Mnemonic values</i>	<i>Description</i>	<i>Notes</i>	<i>Mnemonic values</i>	<i>Description</i>	<i>Notes</i>
MUCAP	Mudharabah capital	The sum of total Mudharabah deposits and the shareholders' capital over total assets.	LCACL	Quick assets to current liabilities	The ratio of quick assets to current liabilities. The quick assets contains assets that are less than 1 year maturity that are convertible to cash with minimal or no loss in value upon maturity.
EQTNL	Total equity to total net loan	Total equity over total net financing (this includes both Mudharabah and non-Mudharabah financings given).	FFIN	Income from financing activities to operating profit	The ratio of income generated from financing activities to earnings before finance cost, zakat and tax.
MDIA	Mudharabah deposit accounts	The ratio of Mudharabah deposits to total deposits in general.	ROE	Return on equity	Ratio of operating profit to shareholders' equity.
TETA	Total equity to total assets	The ratio of total shareholders' equity to total assets.	EPS	Earnings per share	The ratio of income attributable to shareholders' to the total number of shares outstanding.
CACL	Current assets over current liabilities	The ratio of current assets over current liabilities.	EXRET	Abnormal return of BIMB's share	The excess of BIMB's share return compared to the return given by the 3-Months Malaysian T-bill.
CSL	Cash and cash equivalents to current liabilities	Cash and cash equivalents divide current liabilities.	MBLR	Malaysian Base Lending rate	This is taken as the central bank's 3-months intervention rate (BNM, 2003). It is equal to the rate after accounting for the cost of money plus the bank's administrative costs.
NLTA	Net loan to total assets	Total net financings given out over total assets.	EXCHG	Exchange rate	The exchange rate is taken as the rate of US\$1 to MYR on a specific period.
MTBS	Malaysian 3-months Treasury Bill rates of return	The 3-months Malaysian T-Bill rate	MUDVA	Mudharabah-Value Added	Derived using the formula developed to account for value added to the Mudharabah capital providers.

**Table 4**  
**Regression model for MUDVA Dependent Variable: MUDVA Method: Least Squares**  
**Included observations: 20**

<i>Exogenous Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>
C	1017141.	2116360.	0.480609
	-5444804.	2095822.	-2.597932*
	-12684471	6442617.	-1.968838
	491385.2	154661.4	3.177166**
	30216632	16177191	1.867854
	-424912.1	246982.5	-1.720414
	3457202.	9830199.	0.351692
	-4531892.	2985895.	-1.517767
	-4217875.	10504409	-0.401534
	-32676.17	20035.70	-1.630897
ROE	746996.0	204862.6	3.646327**
	-2373003.	257810.5	-9.204448***
	-286850.3	85343.59	-3.361123**
	1195588.	220299.6	5.427100***
	523625.5	186872.1	2.802053**
	-1013463.	179925.8	-5.632670***
R-squared	0.994725	Mean dependent variable	-72662.44
Adjusted R-squared	0.974942	S.D. dependent variable	216349.1
S.E. of regression	34247.15	Prob(F-statistic)	0.000867
Sum squared resid	4.69E+09	Durbin-Watson stat	2.164674
F-statistic	50.28362		

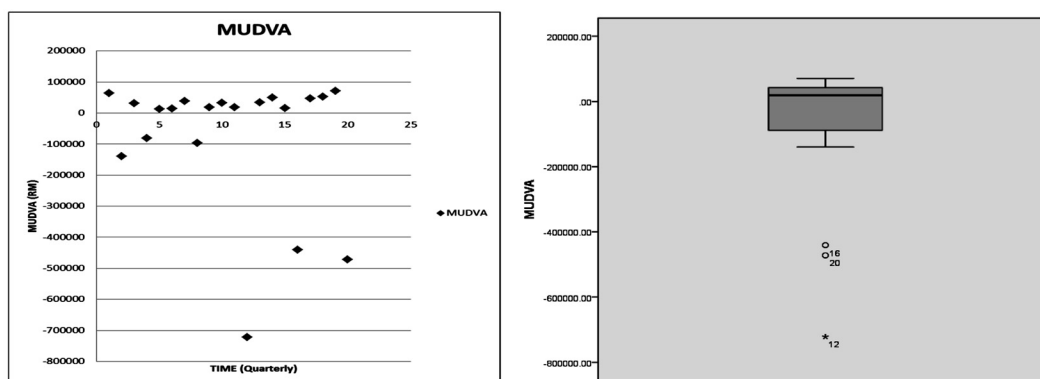
**Note:** The values of t-statistics are shown at 1%, 5% and 10% level of significance by \*, \*\* and \*\*\*.

**Table 5**  
**Descriptive Statistics**

	MUDVA	MUCAP	EQTNL	MDIA	TETA	CACL	CST	NLTA	LCACL	FFIN	ROE	EPS	EXRET	MBLR	EXCHG	MTBS
Mean	-72662.44	0.965375	0.203413	0.445826	0.084340	0.600733	0.184654	0.417795	0.170947	0.077148	0.175145	0.125331	0.033345	6.295000	3.247675	2.800000
Median	18695.63	0.970689	0.195856	0.422168	0.083268	0.595678	0.133120	0.397562	0.122102	0.135234	0.104470	0.077701	0.027233	6.550000	3.182250	2.950000
Std. Dev.	216349.1	0.013567	0.070143	0.124965	0.028041	0.097060	0.131040	0.051157	0.123643	0.664302	0.161867	0.121414	0.204269	0.449532	0.204639	0.482319
<b>Skewness</b>	-1.960255	-0.963101	2.992629	2.370520	2.815464	0.888957	0.752522	0.575902	0.769214	-1.470498	1.430556	1.602928	0.423017	-0.772855	0.612486	-0.638153
Kurtosis	5.645539	2.602212	12.39640	9.087355	11.94591	6.226231	2.041954	2.273992	2.058173	10.52716	3.436425	4.267788	3.041293	2.017087	2.189359	2.262648
<b>Jarque-Bera</b>	18.64106	3.223740	103.4297	49.61113	93.11382	11.30796	2.652507	1.544782	2.711499	54.42296	6.980362	9.904000	0.597898	2.796115	1.798079	1.810539
Probability	0.000090	0.199514	0.000000	0.000000	0.000000	0.003504	0.265470	0.461907	0.257754	0.000000	0.030495	0.007069	0.741597	0.247076	0.406960	0.404433

**Note:** The table shows the descriptive summary for the following variables: MUDVA, MUCAP, EQTNL, MDIA, TETA, CACL, CST, NLTA, LCACL, FFIN, ROE, EPS, EXRET, MBLR, EXCHG, and MTBS

Figure 1: The scatter plots (left) and boxplot diagram (right) of Bank Islam Malaysia Berhad (BIMB) quarterly MUDVA in Ringgit Malaysia (RM).



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