

**ACDEC**ASEAN Consortium on Department of  
Economics Conference

ACDEC Proceedings 2015

ISBN 978-983-43720-4-0

## Financing Risk and Debt Financing Modes of Islamic Bank In Malaysia: A Theoretical Perspective

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### Abstract

The purpose of this paper is to discuss the financing risk in Islamic banks and to explain it from the theoretical perspectives why Islamic banks concentrate on debt based financing modes. From this stance, this study focuses on the issue on how the debt financing mode could trigger financing risk. Specifically, there are two questions regarding on this issue. First, what is the nature of Islamic debt financing modes that could trigger Islamic Bank financing risk? Second, what are the important variables used by Islamic banks to monitor their financing risk? To answer these questions, this paper attempt to explain this issue utilizing agency theory, financial intermediation theory and portfolio theory in the context of Islamic banking model. Based on these theories, this study find that the endogenous factors such as the level of capital, the management cost and efficiency and the level of asset play an important role in the financing risk management of Islamic banks and highlight the reason why Islamic Bank prefer debt-financing modes.

*Keywords:* Financing Risk; Debt Financing; portfolio theory; financial intermediation theory and financing risk management.

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## 1.0 Introduction

One of the main sources of banks' instability is credit risk: the risk of loss resulting from counterparty default (Gizycki, 2001). Credit risk or also known as non-performing loans will disrupt banking sector profits (Yixin Hou, 2007). For Islamic banks, credit risk is known as non-performing financing. The existence of financing risk for Islamic banks is due to the nature of their business, which solely depends on lending and borrowing as the main sources of revenues. To a certain extent, when the failure of repayment of maturing debts over a certain period is overwhelming, the banks may face liquidity problems where they are unable to meet financial liabilities and obligations and lower their return. There are two potential problems due to financing risks, which are liquidity shortage to meeting liabilities and loss of confidence of investors or depositors in the institutions (Rasem N. Kayed & Kassim M. Mohamed, 2010). These two outcomes could affect the return of Islamic banking institutions.

As for the case of Islamic banks in Malaysia, in the matter of financing risk management, the Islamic banks choose debt financing modes because this financing mode transfers control of an asset to the debt holders in cases of default. For example, up to 2012, *Bai Bithaman Ajil* (BBA), *Al-Ijarah Thumma Al-Bay'* (AITAB) and *Murabahah* financing cover more than 60 percent of total financing by Islamic banks (BNM, 2014). The customers must obey the terms and conditions of the contract and make payments regularly to prevent default. The Islamic banks retain ownership of the assets and have the capability to seize them in cases of default for this type of contract (Eddy Yusof, Ezry Fahmy, Kashoogie, & Anwar Kamal, 2010). Under Profit and Loss Sharing (PLS) modes such as *Musarakah* and *Mudarabah* financing, the banks have no direct claim on the assets as are in partnership with the entrepreneurs. Hence, the rights or control over the assets conferred by mark up financing differentiate it from PLS financing. The benefit of debt-financing modes is that in cases of default there is no ambiguity about control of the assets. The banks retain the title to the assets until all payments have been made.

Though the predominantly adopted Islamic financing contracts in the Malaysian Islamic banking system are BBA, AITAB and *murabahah* financing, this does not guarantee that the Islamic banks are not exposed to financing risk. Financing risk is unavoidable since asymmetric information exists and under this condition, banks always perform a screening process to separate the "bad" and "good" borrowers, which could avoid underinvestment in good projects and overinvestment in bad ones. The debt financing modes may have a problem of adverse selection and create inefficient default or non-performance activities due to the presence of asymmetric information (Saiful Azhar Rosly, 2005). Adding to the condition where the Islamic banks have smaller market share in assets (around 20 per cent in 2010), economies of scale is harder to come by for the Islamic banks relative to the conventional banks. In this situation, the Islamic banks usually run under high operating budgets that must be absorbed by bank customers who have to pay high profit rates (Saiful Azhar Rosly, 2011).

Based on the above issues, this study attempts to explain from the conceptual parts that explain the behavior of financing risk and return. Hence, this study is structured as follows: the next section highlights the theoretical and literature, the framework of financing risk and return, the basis of the framework: complementary and Operational Structures, the framework of financing risk and return underlying debt financing and the conclusion from this paper

## 2.0 The theoretical framework and literature review

The theories that explain why bank concentrate its lending on certain types of financing modes and also to certain industries is portfolio theory. Portfolio theory has been widely applied in bank risk management. The application of portfolio theory in the context of bank risk management stem from the issue of whether should a bank diversify its loan portfolio as much as possible or should it concentrate its lending to those industries in which it has special expertise. If a loan were a liquid asset with exogenous payoff, this situation can be answered in favour or risk diversification. However, in reality, loans cannot be traded in a liquid market and the bank can at least in part determine the payoff of the loan. This means that its depend on the screening and monitoring abilities, a bank can prevent or at least mitigate the information asymmetry problems (financial intermediation theories) associated with the loan contract and reduce the excessive risk taking (agency theory).

Specifically, banks liabilities are mostly short-term deposits and assets are usually short and long-term to

business and consumers (Kaufman, 1998). Banks are exposing themselves to the insolvency risk when the value of their liabilities is more than the value of their assets due to risk taking by the bank. Furthermore, the situation become more badly when the borrowers are not capable or not willing to service their loan and this situation not just also will increase credit risk but also will potentially trigger liquidity risk. For reducing credit risk exposure, bank can screen the loan applicants, diversifying their financing portfolio by giving out loan to borrowers who are subject to different risk factors or asking for collateral. However, it is important to note that portfolio diversification is unlikely to clear of credit risk totally, especially for banks that specialize in lending to a particular sector (Dullmann & Masschelein, 2006). Besides, using collateral as other alternative to reduce credit risk also cannot eliminate credit risk totally and collateral is costly to establish and monitor (Kaufman, 1998). If loan losses exceed a bank's reserve (required and voluntary) and equity capital, then the bank is insolvent. These losses could lead to systemic crisis if a significant portion of the banking system is having loan losses more than the level of its capital. In addition, the banking systems that have low capital are more vulnerable to such systemic crisis. As for the external factor, the economic performance of borrower also play a crucial rule because this kind of impact cannot be reduce through diversification and finally could lead to systemic banking crises.

The use of debt financing modes has been started and conquered the landscape of Islamic finance, assigning PLS financing mode to a corner accounting for less than 10 percent of the Islamic banking operation since the late 1970s and early 1980s ( Mohamad Nejatullah Siddiqi, 2006). One of the reason Islamic banks prefer to adapt debt-financing modes is that this is the optimal financial instruments for Islamic banks operating in environments characterized by agency problems<sup>†</sup> increases due to change of economic environment, and debt contracts will become the dominant form of finance. In addition, for reasonable levels of moral hazard, debt and equity contracts dominate pure equity contracts from a bank's perspective accords well with the fact that Islamic banks have chosen mark-up contracts as their preferred mechanism of financing investment (Burhonov, 2006; Mohamed Ali Elgari, 2003; Rajesh K. Aggrawal & Tarik Yousef, 2000). Furthermore, when debt and equity contracts can be used, debt will be short term and long term in nature.

Therefore, one can rationalize the preference of Islamic banks to finance short term and long term. Short term financing such as murabahah and Ijarah and long term such as BBA is preferred due to lower cost of investment projects. This explains the prevalence of mark-up contracts used to finance trade and commerce because the cost is lower in these sectors. In order to engage in more costly projects, Islamic banks need to find entrepreneurs that show that their propensity to default is low. The use of collaterals suggests that Islamic banks seek out entrepreneurs who are unlikely to be serious moral hazard risks (Rajesh K. Aggrawal and TarikYousef, 2000). For a longer term, financing contracts Islamic banks in Malaysia prefer BBA financing contracts. The contractual selling price BBA financing is computed based on the size of the financing facility, the contractual profit rate (CPR) and the tenure. The CPR comprises of cost of deposits, overhead cost and a statutory profit margin. If Islamic banks have risky customers, an additional amount is added to evident the risk of default (Saiful Azhar Rosly, 2011).

However, the uses of debt financing modes also have some drawback. The debt financing modes may have to do with the problem of adverse selection and create inefficient default or non-performance activities (Saiful Azhar Rosly, 2005). This is due to the presence of asymmetric information, in certain conditions beyond the level of rate of return, lower quality borrowers are supplied with financing. Adding to the condition of Islamic banks with smaller market share in assets and deposits, economies of scale are harder to come by for Islamic banks relative to conventional banks. In this situation, Islamic banks usually run under high operating budgets that must be absorbed by bank customers who have to pay high profit rates.

The Agency Theory, Financial Intermediation Theory and Portfolio theory reveal much but not least about how banks took and what limit them from taking more risk in order to achieve greater return. Islamic banking model is also not isolated from the application of principal agent theory (risk taking) and financial intermediation theory (asymmetric information problems). The process of selecting, which type of loan to disburse, Islamic banks seem to

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<sup>†</sup> A conflict of interest arising between creditors, shareholders and management because of differing goals.  
Source: <http://www.investopedia.com/terms/a/agencyproblem.asp#ixzz1XKVrk8nY>

do the same as conventional banks where they choose debt financing as more practical and risk manageable alternatives in their financing portfolio. PLS financing modes such as Mudarabah and Musyarakah has been known to give agency problem as well as asymmetric information problem. In Malaysia for example, BBA, Murabahah and Ijarah and AITAB financing are dominating Islamic banks financing facilities. However, from the previous study, it shows that debt financing modes also expose Islamic bank financing risks. An interesting outcome from the review of past literature is how financing modes exposed Islamic banks to the financing risks is still not answerable.

In other words, most previous studies claims that Islamic banks deviate from PLS paradigm and practically apply debt financing modes, however, there is no research the area about the operational framework of what might happen when Islamic bank choose debt-financing modes (see for example, Choong Beng Soon & Ming- Hua Liu, 2006; Jamshaid Anwar Chatta & Obiyathulla Ismath Bacha, 2010 and Obiyathulla Ismath Bacha, 2004). In summary, based on researcher knowledge, there is no operational and conceptual analysis that explained possible inter-relationship with the Islamic financing modes that may stress financial institutions especially in Islamic banking in Malaysia. It is important to develop conceptual tools that can explain the transmission of changes along with potential financial risk events and impacts on banks.

### 3.0 Basis of the framwework: Complementary and Operational Structures

The understanding of the relationship between operational structure and the use of short term and long term debt financing contract in this framework stem from the issue of complementary factors that exist in financial institutions to enable it to manage the risks associated with the financial instrument. The concepts of complementary is discussed in this section, and then continue to the operational structures necessary to manage the risk arising from in short-term and long term trade-based financing.

The concept of complementary postulate that two activities to be complement, if and only if, increasing level of the other activity leads to higher marginal return from increasing level of other activity. Complementary exists when element of a system reinforce each other in terms of contributing to the functioning of the system (Andreas R & Tyrell, 1998). An institutions or system that entails strong complementary of different aspects of its operation will not be able to achieve the benefits by changing only few elements are needed to make the change successful and achieve the goals of the function.

Assume  $f(x, y)$  to be monotonic function with  $x_1 > x_0$  and  $y_1 > y_0$ . Generally, complementary indicates that effect on the value of  $f(.)$  is smaller when x is changed without changing y than when both x and y are changed together. The weak and strong complementary can be distinguish as follows. Weak complementary between x and y would exist when the following condition is fulfilled:

$$f(x_0, y_0) \leq f(x_1, y_0) \leq f(x_1, y_1) \tag{1}$$

The variables x and y would be strong compliments when the following conditions holds good.

$$f(x_1, y_0) \leq f(x_0, y_0) \leq f(x_1, y_1) \tag{2}$$

That is, the effect on the function  $f(.)$  is negative when one variable changes with other remaining constant. As negative number is less than positive one, the general condition of complementary that the marginal changes in the function  $f(.)$  when one variables changes is less than when both variable changes still holds. Following Andreas R and Tyrell (1998), this framework utilized the concept of strong complementarity defined in this analysis. Figure 3.1 depict a function that fulfils strong complementary.

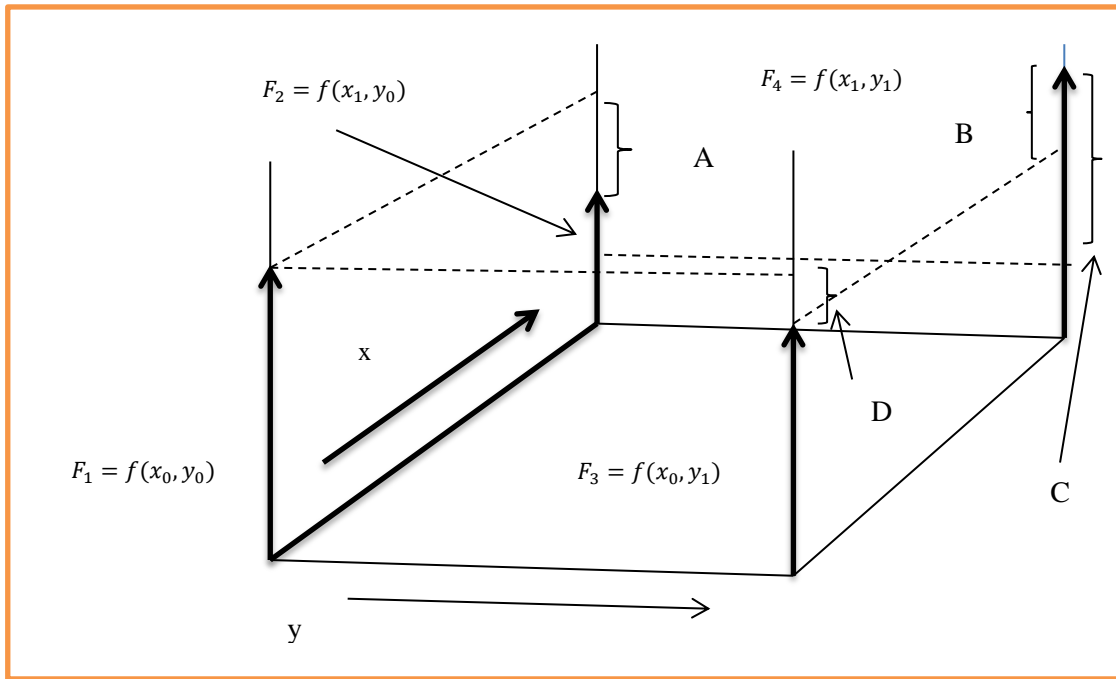


Figure 1:  
Super modular Function and Complementary between x and y  
Source: (Andreas R & Tyrell, 1998)

This simple example above, show the component of the vector  $(x,y)$  (i.e.,  $x$  and  $y$ ) takes values of 0 and 1. Figure 1 shows that for  $x_0 = 0, y_0 = 0$ , the value of the function is  $F_1$ . This represents  $f(x_0, y_0)$  in equation 2. When  $x$  is increased to 1 ( $x_1 = 1$ ) keeping  $y$  unchanged at  $y_0=0$ , the value of function decreases to  $F_2(f(x_1, y_0))$  in equation 2. Similarly, when is increased to  $y_1 = 1$  keeping  $x_0 = 0$ , the value of the function is  $F_3$ . With  $x_1 = 1, y_1 = 1$ ,  $F_4$  is achieved when it corresponding to  $f(x_1, y_1)$  in equation 2.

In this framework, the operational structure of financial institutions is closely related to the management of risk in the process of intermediation. In particular, this framework is focusing on financing risk and their implications on the risk-adjusted profitability of financial institutions. The main important thing in this framework is that the variables and optimum operational strategies that are complementary in the management of these risks. The assumption is that the higher premium exists for longer term trade financing contract, implying the risk adjusted profit is greater than short term debt financing contract. The return form long term debt financing contracts is, however, generated when all factors that can mitigate the risks arising in long term debt financing contract is in place. In this framework short-term debt financing is taken as a benchmark and examine the implication of long-term debt financing contracts relative to this case.

### 3.0 The Framework of Financing Risk and Return Underlying Debt Financing

The model in this framework is adapted from Habib Ahmed (2005) and Andreas R and Tyrell (1998). This model is concentrated on the debt-financing and other internal variables. The structure of financial institutions contains the main elements of the activities and operations of an organization that is related to the achievement of its objective function. Based on the portfolio theory, the objective of financial institutions is to maximize return and minimize the risk. This could be done by managing risk, and one of these aspects of risk management is to manage risk in financing. This is because; the organizational structure of financial institutions will include various aspects of the financing cycle, the nature of risks arising in financing and strategies to manage them. Meanwhile, it is important to note that based on portfolio theory, the risk is comprises of two types of risks, which are unsystematic

risk (Idiosyncratic risk) and systematic risks (market risks). The economic condition falls under the category of systematic risks and comes from economic condition such as GDP growth, inflation rate and interest rates. The unsystematic type of risk (more specifically financing risk apply in this study) can be monitored by the level of capital, the cost of financing or banking operation and the level of asset composition. On the other hand, the systematic risk is not under the control of Islamic banks risk managers.

Therefore, the assumption is that the objective function of financial institutions in this framework is to maximize the profit with the least risks by considering the internal factors affecting Islamic banking financing behavior. Specifically, the objective function of financial institutions can be stated as the maximization of the risk-adjusted expected profit  $\pi_r = (\pi/\sigma)$ , where  $\pi$  is the expected profit and  $\sigma$  is the risks facing the financial institutions. As a noted earlier, risk is considered are endogenous (unsystematic risk, in this study financing and liquidity risks). Before continuing the variables that affect the objective function and how they relate to the financial cycle and the risk of financing and other factors, this framework comes with the assumptions that will be used in the analysis. These are as follows:

- Islamic banks financing are more concentrated to short-term (Murabahah and AITAB) and long-term project trade financing contract such as (BBA).
- A ‘maturity premium’ is attached to longer-term asset/liabilities. Longer-term assets/liabilities pay higher rate of return compared to those which are short term. One reason why long-term investment is given higher rates is the liquidity premium that compensates for the price-risk. The longer the holding period, the greater the uncertainty of the price at which the asset can be sold affecting liquidity. Therefore, this assumption is based the portfolio theory which stated that the higher the risk of an asset, the higher of the return.
- The risk-adjusted rate of return on debt financing contract is based on borrowers financing risk. Borrowers whose risk is high will have to pay higher profit rate. The higher rate is charged to offset the larger probability of default (PD) while clients with lower probability of default pay lower rate. Hence, a financing risk premium is charged based on the finance worthiness of the clients. The higher the risk, the higher the premium via return to the Islamic banks.
- Control and monitoring of assets are costly. Specifically, robust monitoring and control would involve more costs than doing so in a weaker way.
- The role of capital is important as a cushion against loss. Specifically when risk is higher and the losses will increase, therefore, the bank needs to increase their capital ratios and vice versa.

For a financial intermediary, the risk-adjusted expected profit, which focused only on trade based financing modes, is a function following variables:

Table 1. The risk adjusted-profit variables definition

Variable	Interpretation of $\pi_r/F_r = f(M, T_d, K, CA)$
$\pi_r/F_r$	risk-adjusted expected profit $\pi_r$ = expected profit, $F_r$ = financing risk and $L_r$ = liquidity risk
$M = (m_{ltf}, m_{stf})$	Modes of debt financing - ( $m_{ltf}$ – long term trade financing (e. g BBA), $m_{stf}$ – short term trade financing – e. g AITAB, Murabahah)
$T_d = (l_d, s_d)$	Maturity of liabilities ( $l_d$ -long term, $s_d$ -short-term)
$K = (K_r, K_w)$	Monitoring and control of the assets ( $K_r$ -robust, $K_w$ -weak). Included in the cost of managing
$CA = (CA_H, CA_L)$	The level of capital ( $CA_H$ -High capital ratio and equity, $CA_L$ - low capital ratio and equity)

Source: Modified by authors from Andreas R and Tyrell (1998) and Habib Ahmed (2005)

The variables listed above actually are selected based on the agency theory, financial intermediation theory and portfolio theory and then examines their implications for financing and liquidity risks. The maturity of liabilities ( $T_d$ ) relates to the activity of raising funds in the financing process, maturity of assets and modes of financing (M) are associated with selecting and structuring Investment. Monitoring and control of assets (K) has to do with managing assets, which is proxy by the cost of management. Longer-term maturity of the liabilities ( $l_d$ ) affect the cost of funds and affects the expected profit negatively. Similarly, holding asset for longer term asset such as longer term debt financing contract has positive impact on the profitability of the Islamic banks, as the expected return from these assets is higher. The relationship between the maturities of the liabilities ( $T_d$ ) and assets determines the liquidity risk facing an Islamic bank. When short-term liabilities are used to finance long-term assets ( $s_d, m_{ltf}$ ), there is a mis-match between the maturity of the asset and liabilities. What might happen is that the liquidity risk increases affecting the risk-adjusted expected profit and the level of capital adversely. In all other combinations or  $[(l_d, m_{ltf}, (s_d, m_{stf}), (l_d, m_{stf})]$ , the liquidity risk will be small. On the other hand, the nature of financing risk and the impact on the risk-adjusted expected profit will depend on the mode of financing used (M), the level of capital (CA) and also the ability of Islamic bank to handle moral hazard and adverse selection problems (monitoring and control of the asset-K).

The complementary factors required for managing financing risk under debt financing contract. Financing risk was the one arising when the counterparty would fail to meet its obligations timely and fully in accordance with the agreed terms. There are two aspects of managing financing risk after the investment made in the aspect of non-systematic risk. First, monitoring/ controlling the assets to reduce moral hazard are essential to prevent deterioration of their value. Second, Islamic bank managers must ensure the returns from investment at the conclusion of the transaction by disposing of the asset at the highest possible price at an appropriate time. In other word, the Islamic bank managers have the ability to monitor the risk-adjusted profit when dealing with non-systematic risk.

The complementary relationship between debt financing contracts, control and monitoring of assets is show in figure 2. This start with the benchmark case in, which short-term financing contract ( $m_{stf}$ ) occurs with weak monitoring and control of asset ( $K_w$ ). Figure 2 shows that this combination gives a risk-adjusted profit of  $\pi^0/ Fr = \pi_R(m_{stf}, K_w, CA_L)$ . If there is robust monitoring and control of assets ( $K_r$ ), under short-term debt financing ( $m_{stf}$ ), the cost of monitoring increases without any additional increased the return from the financing. This will reduce the risk-adjusted profit to  $\pi^1/ Fr = \pi_R(m_{stf}, K_r, CA_H)$  and need higher capital to cover losses as shown in figure 2. Similarly, if the financial institution uses long term debt financing contract ( $m_{ltf}$ ) with weak monitoring and control ( $K_w$ ), risk adjusted profit decreases to  $\pi^2/ Fr = \pi_R(m_{ltf}, K_w, CA_H)$  and higher capital needed to recover losses. This is because the financing risk increase as the probability of the adverse selection increases. However, when the long term debt financing contract ( $m_{ltf}$ ) is combined with strong monitoring and control ( $K_r$ ), the financial institution can reap higher equity premium  $\pi^3/ Fr = \pi_R(m_{ltf}, K_r, CA_L)$  by mitigating the adverse selection problem associated with long term trade financing contract and low capital needed to recover losses.

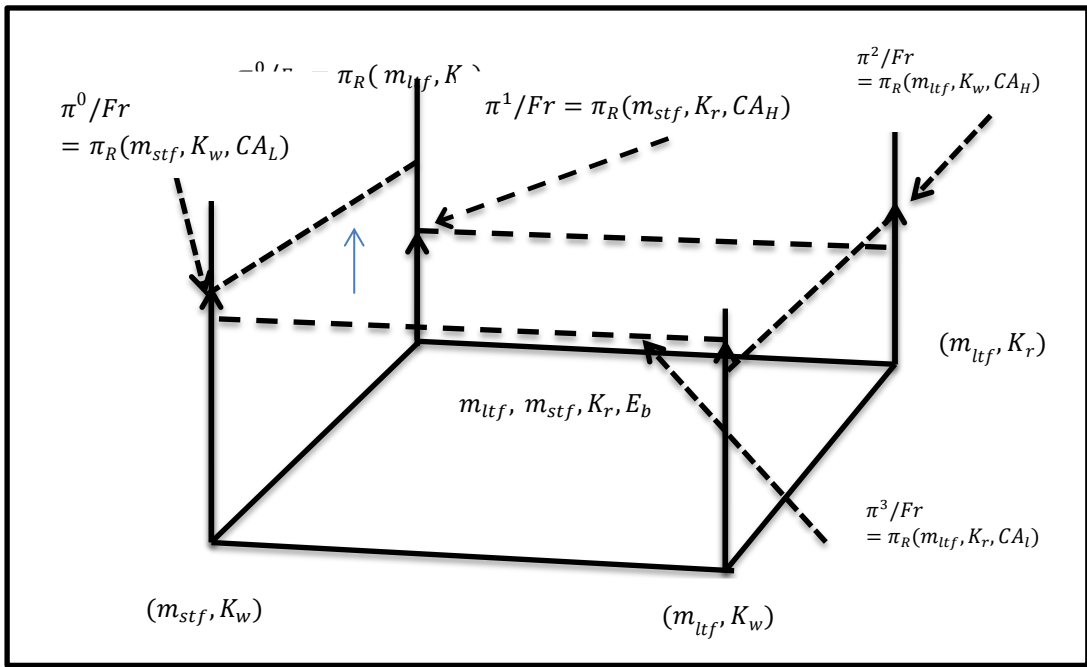


Figure 2 Complementary and financing risk  
 Source: Modified by authors from Andreas R and Tyrell (1998) and Habib Ahmed (2005)

In short, in line with financial intermediation theory<sup>‡</sup>, financing risk underlying debt financing modes is unavoidable since asymmetric information exists. In this case, by utilizing debt financing modes, Islamic banks are still not able to eliminate any high financing risks quickly so that Islamic bank financing risks converge slowly towards their long-run equilibrium values. In other words, Islamic banks financing risk does persist.

#### 4.0 Conclusions

In the theoretical framework discuss in this paper, the theories that explain why bank concentrate its lending on certain types of financing modes and also to certain industries is portfolio theory. Portfolio theory has been widely applied in bank risk management. The application of portfolio theory in the context of bank risk management stem from the issue of whether should a bank diversify its loan portfolio as much as possible or should it concentrate its lending to those industries in which it has special expertise. Section 3 has explained why Islamic bank concentrate more on debt financing or mark-up type of financing. Furthermore, they are various studies done by various authors studying bank loan concentration for conventional bank as well as Islamic bank in section 2. Though there are extensively studies done base on portfolio theory, it is reasonable to justify and understand the basic of the operational framework in the model specification in section 3. For example, the complementary factors required for managing financing risk under debt financing contract. Financing risk was the one arising when the

<sup>‡</sup> One of the reasons that can cause asset deterioration is when customers are unwilling or unable to service their debts and this will lead to an increase in financing risk to the bank. The reasonable explanation behind this is information asymmetry problem because borrowers are more knowledgeable about their investment projects than the banks are (Allen N et al., 2004; Diamond, 1991).



counterparty would fail to meet its obligations timely and fully in accordance with the agreed terms. There are two aspects of managing financing risk after the investment made in the aspect of non-systematic risk. First, monitoring/controlling the assets to reduce moral hazard are essential to prevent deterioration of their value. Second, Islamic bank managers must ensure the returns from investment at the conclusion of the transaction by disposing of the asset at the highest possible price at an appropriate time. In other word, the Islamic bank managers have the ability to monitor the risk-adjusted profit when dealing with non-systematic risk.

Shorter term financing contract need weak monitoring and control of asset wouldn't reduce the risk-adjusted profit and need lower capital to cover losses. However, if the financial institution uses long term trade financing contract with weak monitoring and control risk adjusted profit decreases and higher capital needed to recover losses. This is because the financing risk increase as the probability of the adverse selection increases. However, when the long term trade financing contract is combined with strong monitoring and control the financial institution can reap higher equity premium by mitigating the adverse selection problem associated with long term trade financing contract. This paper has shown that financing risks is important for helping to understand the capability of financial institutions to facilitate and enhance economic processes, manage risks and absorb shocks. This study focused on operational analysis where Islamic bank financing risk viewed from aspect of Islamic financing contracts and other determinants. However the limitation in this study is that the operational framework analysis alone is not sufficient to make an overall assessment of Islamic Banks financing risk. There are broad ranges of elements that are not easy to quantify and assess. For example, regulatory frameworks to governing the financial system play a major role to the soundness of the financial system. This covers effective regulatory and supervisory framework, greater transparency and disclosure of information, risk management framework, effective and dynamic Shariah framework, development of comprehensive legal infrastructure, development of vibrant Islamic financial markets are among active actions taken by regulators to ensure the sound and the viability of the Islamic banking system (Zeti Akhtar Aziz, 2004). Therefor for future research, the analyses could be done based on a comprehensive set of indicators or cover some of the structure of Islamic banks and economic situation. In this case, monitoring comprehensive set of indicator is more meaningful such as prudential indicators monitored not only for Islamic banks but also for other Islamic financial institutions.

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