

## **Determinants of Displaced Commercial Risk in Islamic Banking Institutions: Malaysia Evidence**

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### **ABSTRACT**

Islamic banks are exposed to a unique risk such as Displaced Commercial Risk (DCR). DCR arises from the assets managed on behalf of the investment account holders which may be borne by the Islamic bank's own capital, when the Islamic banks forgo part or all of its share of profits on the investment account holders funds, in order to increase the return to the investment account holders. In a dual banking system, DCR could be a threat to the Islamic banks given the competition of fixed and higher return from the conventional banks. However, DCR would not be a threat to Islamic banks if their account holders choose Islamic banks due to religious obligatory factor. Pertaining to this issue, this paper aims to identify the determinants of factors influencing the DCR among the Islamic banks in the case of Malaysia. Results of the study suggest that the DCR is significantly determined by the Investment account holder funds, Islamic deposit, rate of return, and interest rate.

**Keywords:** islamic banks, islamic rate of return, displaced commercial risk, islamic deposit, investment account holders, interest rates, profit sharing investment account.

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## INTRODUCTION

This study aims to examine the determinant of displaced commercial risk to the Islamic banks in Malaysia. DCR refers to the risk arising from the assets managed on behalf of the investment account holders which is transferred to the Islamic banking institutions' own capital where the Islamic banking institutions forgo part or all of its portion of profits on Profit Sharing Investments Accounts, in order to increase the rate of return that would otherwise be payable to the investment account holders. Technically, if customers choose Islamic banks purely on religious motivation, DCR should not be a concern since they would not withdraw their deposits from the Islamic banks due to lower return compared to the conventional banks.

However, the development of the Islamic banking in Malaysia suggest the possibility of displaced commercial risk to exist within the Islamic banking system. Firstly, the Malaysian banking system is based on parallel or dual banking system, which allows interest-based and interest-free banking to coexist and compete for deposits and financing. As the Malaysians are multi-religious and multi-cultural, Islamic banking is therefore expected to deal with situations in which the demand for and supply of excess funds are no longer made on the basis of faith alone but also on factors such as return on deposits, cost of financing and convenience. The religious and non-religious elements in the market segment of the Malaysian Islamic banking is likely to affect performance as changes in market interest rates are likely to affect Islamic bankers' asset-liability management strategy, as well as depositors' behaviour.

The Bank Negara Malaysia Annual Report 2012 exposed, since 2000 to 2012 (BNM, 2012), the Islamic banks have successfully expanded their operations by attracting more customers, the non-Muslims included. This implies that Islamic banks customers are no longer limited to those whose motivation is religious per se. This translates into the probability that these customers are highly profit oriented, hence there is also a high tendency for them to withdraw their deposits should the return from Islamic banks are not par to the conventional ones. Given this situation, there is a higher probability of Islamic banks facing Displaced Commercial Risk (DCR).

Moreover, studies show that banks' customers' motivation for choosing a bank is not at all related to religious factor. For instance, Marimuthu *et al.* (2010) and Amin *et al.* (2011) conduct studies on the loyalty of Muslim and non-Muslim customers in the Malaysian Islamic banks. Both studies claim that, customers are concerned with three major attributes that ultimately affect their switching behaviours, which are better service provided by bank competitors; higher profit provided by other banks; and the variety of products and services. In addition, Mulyani (1998) finds that in Indonesia, people choose Islamic banks not so much because of religious, instead profits hold an important role in bank selection process.

Another set of studies (Haron and Shanmugam, 1995; Haron and Ahmad, 2000; Mangkuto, 2004; Sukmana and Yusof, 2005; Yusof *et al.*, 2009; Leong *et al.*, 2009; Mohamad Zaid *et al.*, 2011; Abduh *et al.*, 2011; Zeitun, 2012) that examine the savings motive of Islamic banks customers, also observe the existence of profit motive among the Islamic bank's customers. The existence of profit motive has many implications, one of which is the tendency of depositors to withdraw their fund and remove it to conventional bank if the latter offers higher return (interest rates).

More importantly, Zainol and Kasim (2010) and Bacha (2004) find that changes in Islamic banks' total deposits depend on the level of conventional banks' interest rate; and there is a significant relationship between conventional banks' interest rate and Islamic banks' total deposits. This suggests the existence of deposit switching from Islamic banks to conventional banks when the conventional banks' interest rate increases. The evidence is more direct in highlighting the possibility of DCR to be a threat to the Islamic banks since it proves that deposit transfer did exist when there is an increase in conventional banks' interest rate.

Collectively, those findings suggest that Islamic banks in Malaysia possibly face the threat of DCR, which is the tendency of Islamic banks depositors to withdraw their fund and transfer the fund to conventional banks when the real return provided by the Islamic bank is lower than the interest rate of its conventional counterparts (and vice versa). However, to the best of our knowledge, studies on DCR and its significance to the Islamic banks is very limited.

Hence, this study is undertaken to empirically examine to seek the determinant of DCR in Malaysian Islamic banks.

The next section presents a detail explanation on the core concept, which is Displaced Commercial Risk. The research data and methodology is covered in Section 3. The empirical results and conclusion are presented in Sections 4 and 5, respectively.

### **Displaced Commercial Risk (DCR)**

According by previous authors (Rosly and Zaini, 2008; Sundararajan, 2008; and How *et al.*, 2005), the Islamic banks should consider in displaced commercial risk because this problem occurs due to competitive pressures on bank to attract and retain investors (fund providers). In fact that, the Islamic banks as *mudharib* may forgo a proportion of its income from assets funded by the profit sharing investment account and apportion its share to the Investment Account Holders (fund provider). Toumi (2010) who extended previous author's work, he found that the displaced commercial risk is an unexpected loss that the bank is able to absorb to ensure that Investment Account Holders (IAH) is remunerated at a competitive rate.

Displaced commercial risk also indicates that the Islamic bank may not be able to pay competitive rates of returns as compared to other competitors. In such situations, this risk arises when an Islamic bank underperforms during a period and is unable to generate adequate profits to pay its investors and depositors a rate of return higher than what should be payable under the actual terms of the investment contract (AAOIFI, 1999; Khan and Ahmed, 2001; Van Hennie and Iqbal, 2008). The reasons for this are quite clear in the Islamic bank environment. If bank does not provide competitive rates similar on deposits, then investment account holders will move their funds to a bank (Islamic or otherwise) that is able to pay better rates.

Therefore, most of Islamic banks decide to waive their profit portion to pay the investment account holders (IAHs) in order to prevent the withdrawal of the investment account holders. An Islamic bank is strongly exposed to massive withdrawal risk due to lower rate of return on investments deposits, which explains the logic of increasing the profits distributed to IAHs (Khan and Ahmed, 2001; Ahmed, 2003; IFSB, 2005; El-Hawary *et al.*, 2007). Once it occurs

and cannot be handled properly, Islamic banks may go bankrupt or at least be taken over by government (banking authority). To prevent withdrawal from their depositors, the owners of the bank will need to apportion part of their own share in profits to the investment depositors. As a result, some Islamic banks give minimum guaranteed returns to depositors, although it is prohibited by the shariah principles (AAOIFI, 1999; Warde, 2000)

Thus, Archer and Karim (2006) argue that DCR is potentially an efficient and value creating means of sharing risks between two classes of investor with different risk diversification capabilities and preferences. Therefore, Islamic banks set up two standards of practices reserves with the intention to overcome DCR and attract investment account holders. According to Greuning and Iqbal (2007), Islamic banks introduce Profit Equalization Reserve (PER) and Investment Risk Reserve (IRR) to compete with conventional banking industry, it is a shield used by Islamic banks to protect DCR. Besides that, Central Bank of Malaysia (BNM, 2004) issued Framework of Rate of Return to aid Islamic banking sector to mitigate risk of income destruction by sustaining comparable rates of return for fund depositors.

It means that DCR is related to the fact that Islamic banks may find themselves under pressure to smooth the rate of return of the Profit Sharing Investments Accounts (PSIA) in order to remain competitive and not lose customers. In addition, the actual return of PSIA would be subsidized by shareholders' profits (Christos & Alexandros, 2009).

Further, the issues of DCR arise as a result of the risk characteristics of profit-sharing investment accounts (PSIA). PSIA were designed to achieve equitable sharing of risk, which is one of the principles of Islamic finance. The characteristics of PSIA in Islamic banks could vary among banks and jurisdictions, from being deposit-like products (fixed return, capital certain, all risks borne by shareholders) in some, to being investment-like products (variable return, bearing the risk of losses in underlying investments) in others. These depend on the extent of the balance sheet risks transferred from investment account holders to shareholders through various techniques available to Islamic banks' management.

Unlike conventional banks' deposits, contractual relationship between Islamic banks and investment

account holders, for example the PSIA holders, called *mudarabah*, is based on the concept of profit and loss sharing. In this system, investment account holders do not have the same rights as depositors or shareholders, but they are required to absorb any losses on assets, except the cases of negligence or misconduct by the bank. The risk due to the loss of competitiveness, caused by PSIA is called DCR. In the case of increasing PSIA share in banks' liabilities, can expose the bank to higher DCR, which refers to unexpected losses that the bank is able to absorb to ensure that IAH are remunerated at a competitive rate, especially if this increase is associated with greater risk-taking.

In Islamic banks, the target market is likely to be sensitive to market based price measures, particularly if these banks operate in competitive contractual environments with other Islamic and conventional banks and deposit taking institutions. As a result, Islamic banks may be pressured in varying degrees to provide distributions similar to other institutions or risk losing their depositor base. This risk has been termed displaced commercial risk. It essentially refers to the risk that investors will withdraw their funds in droves, thereby subjecting the bank to failure, if the returns paid demonstrate a trend contrary to the investors' expectations of deposits of a similar nature.

Particularly, in this section we focus on the concept of DCR which is applicable in Islamic banks. There is ample evidence that Islamic banks forbid to take any interest related income and thus makes deposits from depositors as an important source of fund for its operational and financing. Therefore, in Islamic banks carry the risk that the bank may confront commercial pressure to pay returns that exceed the rate that has been earned on its assets financed by investment account holders. The bank foregoes part or its entire share of profit in order to retain its fund providers and dissuade them from withdrawing their funds. Thus, we are motivated to examine the determinants of DCR.

## METHOD

This research will use a sample of 17 full-fledged Islamic banks in Malaysia. The study periods span from 1994 to 2012, using a balanced panel data. Our calculations are based on individual bank data drawn from the available annual report database.

## Determinant Factors of Displaced Commercial Risk

In determining the factors influencing the displaced commercial risk among the Islamic banks, in line with the earlier studies, four variables are being considered: Investment Account Holders Funds, Islamic Deposit, Rate of Return, and Interest Rate.

Specifically, the study focuses on the following formula:

$$DCR = f(FIAH, DIB, RRI, IR)$$

Where *DCR* is the displaced commercial risk, *FIAH* is the investment account holders funds, *DIB* is the deposit in Islamic banks, *RRI* is the rate of return Islamic, and *IR* is the interest rate.

A linear equation, relating the *DCR* measures to a variety of indicators is specified. The determinant model can be specified as follow:

$$DCR_{i,t} = \varphi_{0i} + \varphi_1 FIAH_{i,t} + \varphi_2 DIB_{i,t} + \varphi_3 RRI_{i,t} + \varphi_4 IR_{i,t} + m_{i,t} \quad (1)$$

Where the dependent variable is the *DCR* is displaced commercial risk for bank *i* at time *t*. Whereas, the independent variables are: *FIAH* is the Investment account holders funds; the *DIB* is total deposits of a bank; *RRI* is the Islamic rate of return; *IR* is the interest rate ratios and  $\mu$  is an error term for bank.

## The Funds of Investment Account Holders (FIAH)

*FIAH* refers to a customer funds with an investment account maintained at an Islamic banks. Under the *Mudarabah* contract, the investment account holders agree to participate as *rabbul-mal* and Islamic banks itself as *Mudarib*. As property owner, investment account holders are responsible to endure the losses arising from the assets funded, except for the case of fraud, misconduct, negligence, or rupture of contract terms and conditions by the Islamic banks. The investment account holders thus endure the commercial risk associated with the assets funded by the funds provided by them. At the same time, the Islamic banks are responsible for managing the investment of assets and are under a fiduciary obligation to safeguard the interests of the investment account holders via the establishment of rigorous and prudent policies in the administration of the assets financed by investment account holders.

However, Islamic banks are faced with a problem while managing FIAH. Most of the problems have been the limited availability of shariah compliant instruments for managing liquidity, the absence of a shariah compliant interbank money market, and a few of a shariah compliant lender provided by the central bank.

At this situation, in the returns earned on its FIAH being uncompetitive compared to those being offered by its competitors, whether Islamic banks or conventional institutions. In such a circumstances FIAH exposes the Islamic banks to DCR.

Put formally, in formula of profit distributed to investment account holders ( $P_{IAH}$ ) is calculated for the given bank, such as:

$$P_{IAH} = P_A + P_{PER,IRR} + P_S$$

Where  $P_A$  is represent the actual profit generated by assets funded by investment account holders during a year.  $P_{PER,IRR}$  is the profit from *PER* and *IRR*.  $P_S$  or  $P_{Smooth}$  is the profit transferred from shareholders (part of *mudarib's* share and/or *hibah* from shareholders).

The relationship between FIAH and DCR occurred when the Islamic banks may have invested FIAH into relatively longmaturity assets such as long maturity *Murabahah*, *Murabahah* for the purchase orderer, *Ijarah* or *Ijarah Muntahia Bittamleek*, and thereby have locked in lower rates of return on assets than those currently on offer in the market. DCR results when there is pressure on the Islamic banks to match the market expectations of investment account holders. As a result, DCR will increase in the Islamic bank. Hence, the FIAH responds positively to the DCR.

### The Total of Deposits in Islamic Banks (DIB)

Islamic banks are dependent on depositor's money as a source of funds. According to the Keynesian theory of demand for money, there are three main motives why people hold money: transactions, protective and investment. In order to cater for these motives, Islamic banks offer three categories of deposit facilities that are demand, savings and investment deposits. Demand deposit facility is most commonly referred to as current account and is designed for those who need money for transaction purposes. This motive can be looked at from the point of view of consumers who want income to meet their household expenditure and from the viewpoint of

businessmen who require money and want to hold it in order to carry on their business. Hence, the purpose of deposit facility is for convenience or for making daily commitments. The second category of deposit is the savings account, which caters the need of those who wishes to save money but at the same time want to earn an income. Depositors of savings account hold money because of protective motives while are simultaneously induced by their investment motives. Protective motives for holding money refer to the desire of people to hold cash balances for unforeseen contingencies. The final category of deposit facility is investment deposits. Such facility is offered by banks to cater for the investment motives of customers who normally have idle funds and are looking for better returns on their money.

### The Islamic Rate of Return (RRI)

The Islamic banks could also be exposed to rate of return (RRI) as founded by the Islamic Financial Services Board (IFSB, 2005). RRI refer to a standard of Islamic bank return to addressing the information asymmetry between Islamic banks and the depositors by enhancing the level of transparency and ensuring that depositors would receive fair returns on their investment.

However, RRI differs from interest rate in that Islamic banks are concerned with the result of their investment activities at the end of the investment holding period. This rate is a major concern of Islamic banks connected with the investment holding period and it happens as a result of Islamic banks' investment activities. It is not possible for the Islamic banks to determine in advance the results of investment in terms of its profitability (Ismail, 2010). According to Iqbal and Greuning (2008), the RRI is different from the interest rate in two ways. First, since Islamic banks have a mix of mark-up based and equity based investments, there is higher uncertainty in the RRI earned on investments compared to banks which operate on interest based whereby there are fixed income securities on the assets side. Second, the return on deposits in conventional banks is predetermined, while the return on deposits in Islamic banks is anticipated but not agreed earlier.

A consequence of the RRI is the DCR which involves the transfer of risk associated with deposits to equity holders. DCR implies that the bank may operate in full compliance with the shariah

requirements, may not be able to pay competitive RRI as compared to its peers and other competitors. Islamic banks may be under market pressure to pay a return that exceeds the rate that has been earned on assets financed by depositor when the return on assets is under-performing as compared with competitors' rates. Islamic banks may decide to waive their rights to part or their entire Muarib share of profits in order to satisfy and retain their fund providers and dissuade them from withdrawing their funds.

### **The Conventional Interest Rates (IR)**

In a dual banking system where the Islamic banking system operates in parallel with the conventional system. Changes in the IR put pressure on the Islamic banks system. Consequently, the Islamic banks are exposed to the IR movements similar to the conventional counterparts since the rate of return in the Islamic banks is sensitive to the changes in the IR.

According to How *et al.* (2005), IR should be a concern to the Islamic banks, particularly in a dual banking system such as in Malaysia. This is because misunderstanding that the Islamic banks are not using IR in their transaction. So they are not exposed to IR. Unlike conventional banks that have more flexibility on the asset side, meanwhile Islamic banks have the fixed rate assets that not sensitive to the interest rate changes but in the liability side are sensitive to IR changes. Similarly, Kasri and Kassim (2009) find that the IR is one of the major determinants of saving in the Islamic banks. Furthermore, the tendency of Islamic banks are exposed of DCR are very high.

Since IR will be effect on the existence of DCR, we need to be considering the relationship between interest rates (IR) with DCR. The existing literature shows that the IR can influence banks' risk activities (Dell'Araccia and Marquez, 2006; Rajan, 2006; Borio and Zhu, 2008; Delis and Kouretas, 2011; Maddaloni and Peydro, 2011). Typically, in a positive side, Islamic banks have a higher risk taking when IR are higher. However, in a negative side, IR levels can influence the ability of borrowers to repay (Jarrow and Turnbull, 2000; Carling *et al.*, 2007; Alessandri and Drehmann, 2010; Drehmann, Sorensen, and Stringa, 2010) at higher levels the incentive to default (moral hazard) increases.

Table 1. shows summarizes the variables utilized in the estimations. It follows with the hypotheses and expected coefficients.

## **RESULTS**

Descriptive analysis was conducted to observe the statistical properties of the data used as variables, such as the mean, median, standard deviation and normality of the data. Mean refers to the average value of each variable in the study sample. Median is the middle value of the data when it has been arranged in ascending, while standard deviation shows the data dispersion or variation from the mean value. Table 1. illustrates the summary of basic descriptive statistics of the variables involved in the model developed.

In measuring skewness, it is found that the bank characteristic variables, which consist of the investment account holders' funds (FIAH) and the displaced commercial risk (DCR), deposit in Islamic banks (DIB) and the interest rate (IR) were positively scattered.

Next, kurtosis tests were carried out to observe the normality of the data distribution. Based on this output, only the displaced commercial risk' values are approaching two, meeting the criteria for a normally distributed data.

Jarque-Bera test is then used to confirm the extent of the data normality distribution. From this test, results in Table 2. demonstrate that all variables are significant. This shows that all data are not normally distributed. Therefore, ordinary least square (OLS) estimation is not compatible with the research data. Hence, the Generalized Least Square (GLS) method is more appropriate and expected to yield a much better result.

Table 3. shows the correlation matrix for the independent variables. Based on the correlation table, it seems that all independent variables have significant correlation with displaced commercial risk variable. Most of the variables are correlated but not beyond the critical threshold of multicollinearity. All correlation results are below 0.6 for each pair of variables, which indicates that multicollinearity is not a potential problem.

To ensure that the factors influencing the displaced commercial risk was indeed accurate to measure all the construct variables for determinant of displaced commercial risk, *Significance Test in Stata SE 10* was performed to test for the validity of instruments. It also should be noted that the particular variables used in this study have already been tested as literature demonstrates, which provide adhoc validity.

Table 1. Description of The Variables

Variables	Description	Hypotheses	Proxy	Expected Coefficients	Author
Dependent Variable					
DCR	Unexpected loss to shareholders when PSIA are treated as being in between pure investment and deposit-like products <b>minus</b> Unexpected loss to shareholders when PSIA are treated as pure investment products	IAHs as rational decision makers might decide to withdraw the deposits if rate of return is lower.	Risk Factor		Htay and Salman (2013)
Independent Variable					
FIAH	The funds of Investment Account Holders	There is a positive relationship between DCR and FIAH in Malaysian Islamic banks.	Profit distribution	+	Sundararajan (2008); Archer & Rifaat (2006, 2007); Sundararajan (2007);
DIP	The total deposits	There is a negative relationship between DCR and DEP in Malaysian Islamic banks.	Saving funds	-	Bacha (2004); Haron and Ahmad (2000); Kasri and Kassim (2009); Haron and Shanmugam (1995); Hutapea and Kasri (2010).
RRI	The Islamic rate of return	There is a negative relationship between DCR and RRI in Malaysian Islamic banks.	Benchmark rates	-	IFSB (2005); Iqbal and Greuning (2008); Ismail (2010);
IR	The Conventional Interest rate	There is a positive relationship between DCR and INT in Malaysian Islamic banks.	Subjected to negative fund gap	+	Ergec and Arslan (2011); Dell'Ariccia and Marquez (2006); Rajan (2006); Borio and Zhu (2008); Delis and Kouretas (2011); Maddaloni and Peydro (2011).

Table 2. Descriptive Statistic Variables

Variables	Mean	Median	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
DCR	2.5115	0.9024	2.7508	0.6860	2.0427	17.7260***
FIAH	3.9850	4.6921	1.8423	-1.3548	3.4266	47.6543***
DIB	1.9301	0.0000	2.3478	0.5108	1.4354	22.1154***
RRI	1.9305	3.0108	1.6602	-0.2899	1.1226	24.4509***
IR	4.0847	3.2000	1.8163	1.2713	3.2412	41.3153***

Note: \* Significant at 1%, \*\* 5%, and\*\*\* 10%

Table 3. Pearson's Correlations

Correlation	DCR	FIAH1	DIB1	RRI	IR
DCR	1.0000				
FIAH	0.5960***	1.0000			
DIB	-0.1527**	0.4209***	1.0000		
RRI	-0.6148***	0.6215***	0.3063***	1.0000	
IR	0.4867***	-0.6176***	-0.2441***	-0.6514***	1.0000

Note: \* Significant at 1%, \*\* 5% and\*\*\* 10%.

Table 4 shows the outcome of the scores for all categories (All, Large and Small banks) are completely related between displaced commercial risk (DCR) with each independent variables itself are significant at the 10 percent.

To separate the displaced commercial risk impact of the Islamic nature of a bank from the impact of the three group level (all, large and small banks categories), we turn to regression analysis. We run several specifications. From the descriptive statistics analysis output in Table 2, it is shows that the Generalized Least Square (GLS) techniques is more appropriate and expected to yield a much better result. For comparison, we report the three different estimations. It has to include GLS with non-effects estimation, GLS with fixed effects estimation and GLS with random effects estimation.

Table 4. Test of Validity

	ALL BANKS	LARGE BANKS	SMALL BANKS
C	-0.5507 (0.2285)***	-0.4109 (0.2617)**	-1.3111 (0.4861)***
FIAH	0.8158 (0.0538)***	0.7691 (0.0600)***	1.0470 (0.1225)***

Note: \* Significant at 1%, \*\* 5% and\*\*\* 10%.

	ALL BANKS	LARGE BANKS	SMALL BANKS
C	1.9409 (0.1923)***	1.7716 (0.2367)***	2.3112 (0.3305)***
DIB	-0.2427 (0.0608)***	-0.2853 (0.0693)***	-0.1070 (0.1349)***

Note: \* Significant at 1%, \*\* 5% and\*\*\* 10%.

	ALL BANKS	LARGE BANKS	SMALL BANKS
C	1.9409 (0.1923)***	1.7716 (0.2367)***	2.3112 (0.3305)***
DIB	-0.2427 (0.0608)***	-0.2853 (0.0693)***	-0.1070 (0.1349)***

Note: \* Significant at 1%, \*\* 5% and\*\*\* 10%.

	ALL BANKS	LARGE BANKS	SMALL BANKS
C	5.3510 (0.3404)***	5.3044 (0.4170)***	5.4627 (0.5877)***
IR	0.7200 (0.0762)***	0.7134 (0.0933)***	0.7358 (0.1315)***

Note: \* Significant at 1%, \*\* 5% and\*\*\* 10%.

	ALL BANKS	LARGE BANKS	SMALL BANKS
C	0.1663 (0.1738)***	0.1469 (0.2149)**	0.2129 (0.2915)***
RRI	-1.1622 (0.0684)***	-1.1620 (0.0845)***	-1.1626 (0.1146)***

Note: \* Significant at 1%, \*\* 5% and\*\*\* 10%.

The regression result of displaced commercial risk has been identified as the dependent variable as a proxy of measuring risk shown in Table 5. The diagnostics test statistics show no evidence of misspecification, no serial correlation, no multicollinearity and no heterokedasticity. The p-value reported for the Chow test statistic is 0.0000. A low p-value suggests that we are able to reject the null hypothesis. Therefore, we choose the fixed effect model. However, the best model is selected based on the Hausman test is to



choose between fixed effects or random effects model. The output of All and Large banks are reported to be chi-square with 2 degrees of freedom and a p-value of 0.0586 and 0.0623 respectively. Based on these results we would to reject the null hypothesis and a fixed effect approach will be preferred. However, converse with the Small banks outputs. The output of small banks is 0.0083. Based on these results we would not to reject the null hypothesis and a random effect approach will be preferred.

The statistical output also shows the result heteroskedasticity problem. When we are use the Breusch-Pagan test, that the null hypothesis is a constant variance. The output shown the p-value is 0.0001, then we reject the null and there is no problem of heteroskedasticity. Based on the output, our results show that fixed effect model is better than GLS none effect and random effect model.

Table 5 reported that for the first set of regressions, the R-squared for All and Large Islamic banks were 58% while Small banks is 61%. These results identify that factors that are significant in determining displaced commercial risk for Islamic banks are the Islamic bank's investment account holders share, the deposit in Islamic banks, the rate of return Islamic, and the interest rate.

## DISCUSSION

In determining the factors influencing the displaced commercial risk among the Islamic banks' customers, in line with the previous chapter, four major objective variables are being considered: Investment account holder funds, Islamic deposit, rate of return, and interest rate (equation 1).

According to Table 1, we can see that the interest rate, Islamic bank's investment account holders share, and displaced commercial risk variables recorded the highest average value in the data distribution with a mean values of 4.0847, 3.9850, and 2.5115 respectively, while the deposit in Islamic banks, and the rate of return Islamic variables show the lowest average value of 1.9301 and 1.9305. The higher average for the investment account holders' funds (FIAH), this indicates that investment account holders are really concern about shariah-compliant investments and any breach committed by bank will destroy their trust and motivate them to withdraw their funds. While the lower average of deposit in Islamic banks (DIB) and the rate of return Islamic (RRI) is shown that the way to anticipate DCR.

Next, standard deviation is used in determining the variation of the data. DCR and DIB variables have the highest standard deviation value of 2.7508 and 2.3478 respectively. This shows that the Islamic banking involved in the research do not consistently perform well in their deposit funds and also Islamic bank depositors expect Islamic banks to pay competitive returns and provide comprehensive banking services (rational behaviors).

Variables DIB and RRI have significantly strong negative values with displaced commercial risk indicating that the greater amount of the rate of return Islamic and the deposit in Islamic banks, the lesser their amount of DCR (Table 3). Another result prove that validity coefficient for these two variables DCR (displaced commercial risk) and the investment account holders' funds (FIAH); displaced commercial risk (DCR) and deposit in Islamic banks (DIB); displaced commercial risk (DCR) and the rate of return Islamic (RRI); and also displaced commercial risk (DCR) and the interest rate (IR) are significant.

### DCR and FIAH

From the research result show that FIAH respond positively to the DCR. There is a positive relationship between DCR and FIAH in Malaysian Islamic banks. When the Islamic banks may have invested FIAH into relatively long maturity assets and thereby have locked in lower rates of return on assets than those currently on offer in the market. DCR results when there is pressure on the Islamic banks to match the market expectations of investment account holders. As a result, DCR will increase in the Islamic bank (Sundararajan, 2007, 2008; Archer and Rifaat, 2006, 2007).

Islamic banks need to be practice the type of income smoothing for FIAH that gives rise to DCR. Failure to smooth FIAH might result of withdrawals of funds by investment account holders to place it in other institution that gives higher yield, which jeopardize the bank's commercial position. Any attempt by Islamic banks to counterpart the market expectation and covering losses arising from assets financed by investment funds, may expose them to DCR. Disclosure of information on policies, procedures and profit allocation basis can provide clarity and transparency regarding the rates of return and associated risks that are applicable to profit sharing investment accounts. The lack of transparency such in the financial reporting of Islamic banks means that this smoothing process is generally not observable in the Islamic banks financial statements (Archer and Rifaat, 2006).

Table 5. GLS Estimation Result

	ALL BANKS			LARGE BANKS			SMALL BANKS		
	Non Effects	Fixed Effects	Random Effects	Non Effects	Fixed Effects	Random Effects	Non Effects	Fixed Effects	Random Effects
C	-1.4968	-1.6518	-1.3952	-1.5330	-1.7257	-1.4090	-1.4218	-1.3778	-1.4218
	0.8198**	0.4859***	0.4720***	0.6123***	0.5807***	0.5686***	0.9157*	0.9341*	0.9157*
FIAH	0.4934	0.6428	0.5670	0.5466	0.6479	0.5520	0.6249	0.6109	0.6249
	0.1161***	0.0684***	0.0602***	0.0726***	0.0780***	0.0680***	0.1460***	0.1511***	0.1460***
DIB	-0.1798	-0.1521	-0.1415	-0.1566	-0.1348	-0.1213	-0.2089	-0.2030	-0.2089
	0.0701***	0.0492***	0.0455***	0.0561***	0.0582***	0.0543***	0.0908***	0.0949**	0.0908***
RRI	-1.0015	-0.8293	-0.8673	-0.8995	-0.8137	-0.8643	-0.8591	-0.8645	-0.8591
	0.1275***	0.0877***	0.0857***	0.1096***	0.1071***	0.1051***	0.1533***	0.1560***	0.1533***
IR	0.1116	0.1032	0.0848	0.1195	0.1170	0.0939	0.0628	0.0599	0.0628
	0.1158*	0.0748*	0.0745*	0.0967*	0.0909*	0.0912*	0.1322*	0.1343**	0.1322*
R <sup>2</sup>	-	0.5878	0.5895	-	0.5795	0.5824	-	0.6129	0.6130
Hausman Test (Test Random vs Fixed effects)		6.98			7.21			6.52	
Prob		0.0586			0.0623			0.0083	
Chow Test (Test None vs Fixed effects)		4.53			5.96			4.02	
Prob		0.0000			0.0000			0.0000	
Breusch-P Test (Test the Heteroskedasticity Problem)		5.71			6.78			4.21	
Prob		0.0001			0.0001			0.0001	

Note:

Figures in parentheses denote 'Standard Error' values of the regressions coefficients.

\*\*\* Significant at 1 percent level.

\*\* Significant at 5 percent level.

\* Significant at 10 percent level.

To cover losses arising from assets financed by investment funds and to smooth rates of return paid to the FIAH, Islamic banks developed in practice several techniques in order to maintain stable and competitive rates to investment depositors.

The first mechanism consists of smoothing returns, using a combination of reserves retained from the profits attributed to both investment account holders and shareholders (Sundararajan, 2008; Archer and Rifaat, 2007; Sundararajan, 2007; Archer

and Rifaat, 2006). Islamic banks can include a clause in the terms of contracts with investment account holders giving the right to the bank to retain a certain proportion of their profits. Generally, the amount of reserves is positively correlated to the rate of return on assets (Sundararajan, 2007). The retention of reserves is a common practice of the majority of Islamic banks (Sundarajan, 2008, Archer and Rifaat, 2006).

Second, consists of investing a significant part of restricted and unrestricted investment accounts in

assets with certain return and lower risk (short-term maturity). This practice generates additional returns for shareholders and provides a cushion for Islamic banks to facilitate returns smoothing (Archer and Rifaat, 2006).

A third mechanism consists of the variation of the percentage of profit taken by Islamic banks as the Mudarib Share. In mudarabah contract, mudarib share is the percentage of the profits of the Islamic bank as a mudarib (fund manager of the investment account). The profits are distributed according to a pre agreed ratio between the Islamic bank and the investment account holders. The percentage of the Mudarib share profit predetermined initially is the maximum part, while the share distributed actually is liable to vary from year to year according to the actual rate of return on asset financed by investment accounts (Archer and Rifaat, 2006). When reserves are insufficient, Islamic banks adjust the Mudarib share, if obliged, and reduce it below to the contracted share (Sundararajan, 2008). Islamic banks may also transfer some proportion of shareholders returns to investment account depositors (Sundarajan, 2008). The shareholders decision to agree, which is a shariah condition, to give up part or all of their profits to increase FIAH means that the shareholders accept that the risk attaching to the returns of a portfolio of assets financed partly or wholly by profit sharing investment accounts is displaced, so that is borne largely by themselves (the shareholders) (Archer and Rifaat; 2007).

### **DCR and DIB**

There is a negative relationship between DCR and DIB in Malaysian Islamic banks. It is showed on empirical result of study in Table 5. However, from the depositor's perspective in the case of relationship between DIB and DCR are related to investment behaviour. The changes in total deposit (DIB) influence DCR, amongst the study from Bacha (2004); Haron and Ahmad (2000); Kasri and Kassim (2009); Haron and Shanmugam (1995); Hutapea and Kasri (2010); Abduh (2011); and Ismal (2011) finds that there is a strong correlation between DIB and DCR. DIB point negative effect on DCR.

The main plausible justification is due to the total Islamic bank deposits tend to decrease regarding issues of shariah non-compliance products and practices, experiencing lower rate of return and receiving rumors on future banking crisis. If these of situation happened, on the opposite side, decreasing

the depositors deposit their money in bank can expose the bank to higher DCR.

### **DCR and RRI**

The other result of the study show that there is a negative relationship between DCR and RRI in Malaysian Islamic banks. Some empirical studies suggest that negative relationship between RRI and DCR (Chong and Liu, 2009; Radiah and Yap, 2009; Rahmatina and Salina, 2006; Sundarajan, 2005; Bacha, 2004; Rachmawati and Syamsulhakim, 2004; Kaleem and Mansoor, 2003; Sudin and Norafifah, 2000; Haron and Schanmugan, 1995). It happened when the Islamic banks invest the funds into long maturity assets which may yield lower RRI compared to the prevailing market expectations. Therefore, in any effort by the Islamic banks to match the market expectation are exposed to DCR.

The situation happened where there is a sudden rise of market rates, the Islamic banks as a strategy to be competitive may decide to increase the RRI payable to depositor to prevent potential withdrawal of funds. This condition indicates that the Islamic banks' depositor are attracted to higher return and guided by the profit motive. In the short run, the lower rate of return would not force depositors to withdraw funds. But, in the long run, it might result to a significant number of depositors who took their funds from Islamic banks (Iqbal and Greuning, 2008; Ismail, 2010).

### **DCR and IR**

The last result show that there is a positive relationship between DCR and IR in Malaysian Islamic banks. Islamic banks are more sensitive to the changes in interest rates compared to the conventional banks. The Islamic banks give a negative response to interest rates. Hence, DCR is positively to the interest rate (Ergec and Arslan, 2011; Dell'Aricecia and Marquez, 2006; Rajan, 2006; Borio and Zhu, 2008; Delis and Kouretas, 2011; Maddaloni and Peydro, 2011).

In a Islamic deposit market, a change in IR influence DCR. It is happened when the IR increase, the DCR will be increase. It is possible that Islamic bank's depositor withdrawn their fund and transfer it to the conventional banks. Thus, the higher the volatility of IR, the bigger the DCR faced by Islamic banks such that the banks need to increase their deposit rate or to decrease their financing rate or operate at

a lower margin (Jarrow and Turnbull, 2000; Carling *et al.*, 2007; and Alessandri and Drehmann, 2010; Drehmann, Sorensen, and Stringa, 2010).

## CONCLUSION

We can conclude that, basically the Displaced Commercial Risk problem should not occur in the Islamic banking system if their account holders choose Islamic banks due to religious obligatory factor. However, the empirical data proven the existing of DCR in Islamic banking system in Malaysia because of a customer that behaves profit motivated or often referred to as a floating client.

Therefore, the main objective of this study was to examine the determinant of displaced commercial risk to the Islamic banks in Malaysia. Accordingly, we found that the Investment Account Holders Funds, Islamic Deposit, Islamic Rate of Return, and Conventional Interest Rate have a significant impact on the displaced commercial risk.

We also run several specifications. From the descriptive statistics analysis output, it is shows that the Generalized Least Square (GLS) techniques is more appropriate and expected to yield a much better result. For comparison, we report the three different estimations. The best model is selected based on the Hausman test. It has to include GLS with non-effects estimation, GLS with fixed effects estimation and GLS with random effects estimation.

The diagnostics test statistics show that, we choose the fixed effect model for determinant of displaced commercial risk and bank performances. It is only being happened in All and Large banks categories because their focus on more realistically and policy relevant the effects of bank characteristics on some outcome. Based on this approach, the individual variable effects can be examined. However, converse with the Small banks results. The random effect approach will be preferred.

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