Risk Management and Performance of Islamic Banks: Using the Income of Mudharaba and Musharaka as a Moderator

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Abstract: Risk management in banks is a crucial issue mainly in Islamic banks. This study seeks to examine the impact of the incomes of mudharaba and musharaka on the relationship between risk and performance, which is measured by ROAA. This study employs unbalanced panel data regression analysis of Ordinary Least Squares method, from 16 Islamic banks from different countries over the period 2012 to 2015, which was processed by the software stata13. The results show that the income of Sharing of Losses and Profits (PLS) products (mudharaba and musharaka) has a moderating effect particularly on the relationships between performance and liquidity risk, and operational risk. However, it has no moderating effect on the relationship between performance and market risk. This study helps to enrich the literature with new models that can help bankers and Islamic finance students to get ideas and make relevant decisions in terms of investment.

Keywords: Performance; Mudharaba; Musharaka; Moderating effect.

1. Introduction

The advances in financial engineering and some changes in the economic have facilitated the development of financial products that integrate the requirements of Islamic finance. At this stage the risks of Islamic finance have occurred. Because of their unique presence, Islamic institutions are recommended to apply rigorous systems to identify and manage the risks that they encounter. Islamic banks usually take more risk than conventional banks because of their lack of experience and lack of familiarity with all new financial instruments.

Indeed, risk management has become a central and transversal function in Islamic and conventional financial institutions. It is a method for identifying, measuring, monitoring and managing the various risks faced by a financial institution, regardless of whether Islamic or conventional. This allows us to say that the effective risk management is a way for better performance.

This paper attempts to respond to the questions of bankers in terms of risk management of PLS products and performance, which form the major concerns of the Islamic banks. It has focused on the effect of the income of Mudharaba and Musharaka on the relationship between the risk and performance. To do this and within the framework of a hypothetical -deductive approach, we try to answer the following problem:

Can revenues from participatory products (mudharaba and musharaka) moderate the relationship between the performance and risks of Islamic banks?

2. Previous Studies and Significant Contributions

Askari *et al.* (2009) pointed out that "the risk may be due to the failure of a bank in its management, neglect in the management of companies and in compliance with contractual obligations, and also the weakness of the internal and external institutional environment including the legal framework, when banks cannot implement their contracts."

Smith (1995) and Schroeck (2002) showed that there is a strong relationship between risk management and the profitability of Islamic banks.

As Islamic banks are newly established institutions, they face an operational risk that arises mainly from the lack of qualified personnel capable of effectively conducting Islamic financial operations. Moreover, the special character of Islamic banks makes that computer software on the market, is not useful for Islamic banks because they are designed for conventional banks. This makes it possible to add a new type of risks related to the use of information technology at the level of Islamic banks.

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Islamic banks offer financing under the principles of profit sharing and risk with its depositors. As such, investment risk arises from investment choices, since by investing in capital, the bank incurs the risk of a loss of its contributions, which it shares, with its depositors.

Bashir (2000) and Sufian and Habibullah (2009) found a positive relationship between bank liquidity and profitability. Berger and Udell (1995) showed that the liquidity risk has a positive impact on the ROA.

Kasman *et al.* (2011) have studied the impact of market risk in emerging countries, they have found that market risk has a significant effect on the profitability of banks. According to Srairi (2009), Islamic banks usually take more risk than conventional banks because of their lack of experience and lack of familiarity with all financial instruments to which they should resort.

Islamic banks do not use PLS products so much because their risks are too high, but if these products positively affect their performance or reduce the risks faced by these banks, these two possibilities can be a motivation for the banks to adopt these financial products and to integrate them into their activities.

In this research paper, we introduced a control variable that is the size of the Islamic bank, since it is a key variable in the performance of Islamic banks. Antonio (2013) showed that a large banking size implies economies of scope in the bank, and results from the varied goods and services.

The Theoretical Frame Work and Hypothesis:

The literature review has given the basis in determining the dependent variable and independent variables. Therefore, the theoretical framework can be presented as follow:
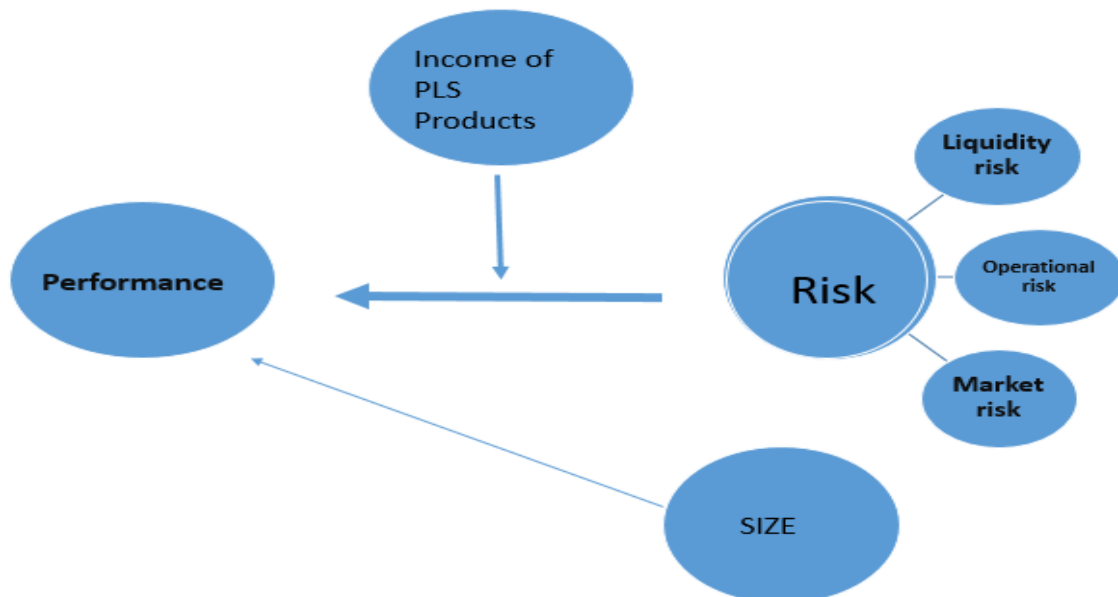
Generally, the moderator variable interacts with the independent variable to influence the dependent variable. The model which contains a moderator variable was has been adopted and treated by several researchers. Granted, this study focuses mainly on the work conducted by Frazier *et al.* (2004) and Marsh *et al.* (2011).

Khan and Ahmed (2001) give an example of the widespread use of the profit-and-loss-sharing contract that is perceived as the least risky, while this type of contract exposes Islamic financial institutions to a specific risk.

Izhar and Asutay (2007) found a relationship between revenues from PLS products of Islamic banks and banks' ability to generate profits.

Rahman and Rochmanika (2012) examined the effect of mudharaba and musharaka on the profitability of Islamic banks, they found that they may eventually affect the profitability of Islamic banks.

In this paper, we are interested in studying the moderator effect of the income of mudharaba and musharaka on the relationship between risks and the performance of Islamic banks. To do this, we will include the incomes of mudharaba and musharaka in the model by multiplying it into each variable.

It is important to examine and analyze the (possible) moderator effect of the income of the PLS products on the relationship between performance and risk through these assumptions:

H1: the incomes of PLS products moderate the relationship between performance and liquidity risk of Islamic banks.

H2: the incomes of PLS products moderate the relationship between the performance and market risk of Islamic banks.

H3: the incomes of PLS products moderate the relationship between performance and operational risk of Islamic banks.

3. Data and Methodology

For our research, we are only interested in Islamic banks. The study population is composed of 16 Islamic banks in seven countries of the world, mainly Asia, Europe and Africa. Indeed, we did not include other banks because of the unavailability of data. We are working on unbalanced panel data from 2012 to 2015. The data are derived from the financial statements of 16 Islamic banks. Moreover, this data was taken from bankscope, which contains the financial statements of those banks. By pooling all the data together, 53 observations were collected.

3.1. Variables Measurements

3.1.1. Dependent Variable

The dependent variable is the profitability of the bank and it is measured by the ratio ROAA (average return on assets). It is calculated by dividing the net income of the bank to its total assets). Flamini *et al.* (2009) have demonstrated that ROA is the best indicator for measuring the performance. It is more adequate than ROE because ROE does not take into consideration the leverage effect.

3.1.2. Independent Variables

The data related to the operational and market risks are taken directly from the database bankscope. However, the liquidity risk was measured by the ratio below:

$$LR = \frac{\text{Liquid assets}}{\text{Deposits and short term funding}}$$

This liquidity ratio can be used to measure the quality of liquidity in banks and has been used by Cihak *et al.* (2012).

In this empirical study, we have introduced the incomes of musharaka and mudharaba as a moderator variable. These revenues were taken directly from the Bankscope. Furthermore, the size of the bank is measured by the total of its assets.

In this research, we have used the logarithm of all those variables.

3.2. Research Model

$$ROAA_{i,t} = \alpha_0 + \alpha_1 LR_{i,t} + \alpha_2 OR_{i,t} + \alpha_3 MR_{i,t} + \alpha_4 MM_{i,t} + \alpha_5 MMLR_{i,t} + \alpha_6 MMOR_{i,t} + \alpha_7 MMMR_{i,t} + \alpha_8 SIZE_{i,t} + \varepsilon_{it}$$

WHERE:

$\alpha 0$: is the constant,

$LR_{i,t}$: is the liquidity risk of the bank i in the period t

$OR_{i,t}$: is the operational risk of the bank i in the period t

$MR_{i,t}$: is the market risk of the bank i in the period t

$MM_{i,t}$: is the moderator variable of the bank i in the period t$MMLR_{i,t}$: represents the incomes of mudharaba & musharaka multiplied to the liquidity risk of the bank i in the period t

$MMOR_{i,t}$: represents the incomes of mudharaba & musharaka multiplied to the operational risk of the bank i in the period t

$MMMR_{i,t}$: represents the incomes of mudharaba & musharaka multiplied to the market risk of the bank i in the period t

$SIZE_{i,t}$: it is the size of the bank i in the period t

4. Results and Discussion

4.1. Descriptive Statistics

Descriptive analysis of the dependent variable:

According to the table below (table 1), the average return on assets is 1.612 for our sample of 16 Islamic banks, which corresponds to 1.599 for the poorest bank and 1.621 for the best performing bank.

Descriptive analysis of independent variables:

On average, the liquidity risk (LR) is in the order of 1.377, which is likely to take a minimum value of -0.076 for the least risky bank and 2.382 for the most risky bank. Indeed, these values have changed when the variable. Moderator (MMLR). The average has become 21.540, and the variable LRMM can take its minimum value which is of the order of -1.36 and its max value which is equal to 40.829. For operational risk (OR), its average is of the order of 13.997, which is likely to take a minimum value of 10.043 for the least risky bank and 21.292 for the most risky bank. Indeed, these values changed when the moderator variable (MMOR) was introduced. The average has become 222.723, and the variable ORMM can take its minimum value which is of the order of 110.996 and its max value which is equal to 401.564. For market risk (MR), its average is of the order of 12.577, which is likely to take a minimum value of 8.699 for the least risky bank and 21.177 for the most risky bank. Indeed, these values changed

when the moderating variable (MMMR) was introduced. The average has become200.317, and the variable MRMM can take its minimum value which is of the order of 106.793 and its max value which is equal to 394.747. For the size of the bank (SIZE), its average is in the order of 22.628, which is likely to take a minimum value of 19.505 for the smallest bank and 25.15 for the largest bank.

Table-1. Descriptive statistics

variable	Obs	Mean	Std. Dev	Min	Max
ROAA	53	1.612	0.003	1.599	1.621
LR	53	1.377	0.498	-0.769	2.382
OR	53	13.998	2.962	10.043	21.292
MR	53	12.578	3.323	8.699	21.177
MM	53	15.785	1.934	10.043	18.859
MMLR	53	21.540	8.081	-1.360	40.829
MMOR	53	222.723	62.293	110.996	401.564
MMMR	53	200.317	66.402	106.793	394.747
SIZE	53	2.628	1.394	19.505	25.155

4.2. Regression Analysis

The table 2 shows that the coefficient of multiple determination R^2, which measures the quality of the adjustment between the endogenous variable and the explanatory variables (the proportion of the variation of the dependent variable explained by the regression model), is of the order of 0.4133. The Fisher test (F = 3.87) which evaluates the quality of R^2 (verifies the degree of significance of the linear relationship between the dependent and independent variables) is significant at the 1% threshold. Therefore, the model is globally significant.

Table-2. Regression results

ROAA	Coef.	Std. Err.	t	P>|t|
LR	0.0203801	0.0090144	2.26	0.029
OR	-0.0053966	0.0023855	-2.26	0.029
MR	0.0035928	0.0026182	1.37	0.177
MM	-0.0000551	0.0015168	-0.04	0.971
MMLR	-0.0012361	0.0005451	-2.27	0.028
MMOR	0.000294	0.0001566	1.88	0.067
MMMR	-0.0002023	0.0001663	-1.22	0.230
SIZE	0.001067	0.0003943	2.71	0.010
_cons	1.592805	0.0276289	57.65	0.000
Number of obs	= 53			
F(8, 44)	= 3.87			
Prob > F	= 0.0016			
R-squared	= 0.4133			

Moreover, the variables LR and MMLR are significant to the order of 5% in this model, this result allows us to say that the moderator variable has improved the relationship between the liquidity risk and the performance➔ this confirms the hypothesis H1. We can say that the variable MM is a moderator of the relationship between liquidity risk and performance and acts negatively on this relationship.

The variables MR and MMMR are not significant, in this model, this result allows us to say that the moderator variable has no effect on the relationship between the market risk and the performance of the Islamic banks. This shows that the hypothesis H2 is unconfirmed ➔ we can thus conclude that the variable MM is not a moderator of the relationship between market risk and performance.

The variables OR and MMOR are significant to the order of 5% and 10% in this model, this result allows us to say that the moderator variable reinforced the relation between the operational risk and the performance. ➔this validates the hypothesis H3. The variable MM is a moderator of the relationship between operational risk and performance and acts positively on this relationship.

Table-3. Summary of the hypothesis

Hypothesis	
H1: the incomes of PLS products moderate the relationship between performance and liquidity risk of Islamic banks.	Accepted
H2: the incomes of PLS products moderate the relationship between the performance and market risk of Islamic banks.	Rejected
H3: the incomes of PLS products moderate the relationship between performance and operational risk of Islamic banks.	Accepted

Our study enriches current research in Islamic finance by proposing a model which allows measuring the impact of the income of mudharaba & musharaka (as a moderator variable) of the relationship between risk and performance.

Our results demonstrate that Islamic banks prove to have interesting motives and benefits leading them to invest in PLS products, enhanced by the desire to significantly increase their performance. Moreover, if one is to focus on the individual effects of risks, our results suggest that banks would take advantage in attaching great importance to the Liquidity risk and Operational risk.

5. Conclusion

This study analyses the impact of the income of mudharaba & musharaka (as a moderator variable) of the relationship between performance and risk. The study involved basically three stages: Firstly, analysis of the literature view which explains the relationship between bank's profitability and risks; secondly, application of a suitable methodology which overcomes the classical econometric problems involved in this kind of studies; and finally, empirical testing of the hypotheses.

In order to test the validity of our hypotheses, which highlight the effect of the moderator variable (income of mudharaba and musharaka) on the relationship between risks and the performance of Islamic banks, we have elaborated the model based on the work of Frazier *et al.* (2004), focusing mainly on liquidity risk, operational risk, and market risk in the Islamic bank. The estimation of this regression was done by the ordinary least squares method (OLS), on a sample of 16 Islamic banks covering the years 2012-2015, highlighted the usefulness of Islamic financial products in improving performance Of Islamic banks.

The main conclusions derived from this study are: in first place, an empirical effect of the moderator variable (MM) on the relationships between the bank's profitability and liquidity risk and operational risk. In second place, the variable (MM) does not have a moderating impact on the relationship between performance and market risk.

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