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Determinants of Stock Returns In Islamic Banks

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Abstract
The purpose of this paper is to examine the determinants of stock returns of Islamic banks. We use the Capital Asset Pricing Model (CAPM) and Fama and French model. In this study, we employ sample composed by 14 Islamic banks during the period from March 31, 2004 to March 18, 2014. We devise the period of study into three periods before the crisis (from March 31, 2004 to December 31, 2007), during the financial crisis of 2008 (from January 01, 2008 to December 30, 2011), and after the financial crisis (from January 02, 2010 to March 18, 2014). The empirical results show that the market risk (Mkt) has a negative impact on stock return of banks characterized by small sizes and a positive impact on banks with big sizes in the case of two models; CAPM and Fama and French. The risk of size (SMB) has a positive impact on small Islamic banks and a negative impact on banks with big sizes. Finally, the risk related to the market value (HML) has a positive impact on small and large Islamic banks.

Keywords:Islamic banks, CAPM, Fama and French (1993), stock returns

Introduction

There are a few decades, another financial system has emerged, that of Islamic finance. First, this finance is only for Muslims, then, it became a system that can no longer ignore. The rapid growth of Islamic finance has allowed him to find in the financial market with products compliant with Sharia' and with Islamic market indices.

So, the Islamic financial markets, has become a very rich discipline that resulted from multiple thoughts and research. The ambition of this research paper is to clarify various aspects of Islamic banking in the financial market that is still little known by the majority. We will make an empirical analysis that allows us to deliver the stock returns determinants of Islamic banks.

Our finding in this study is to conduct an empirical estimate using the CAPM model and Fama and French models to detect determinants stock returns in case of Islamic banks.

In this context, the main objective of this paper is to examine the determinants of the Islamic bank returns. Then, we employ the Capital Asset Pricing Model (CAPM) and the model of Fama and French to study the determinants of the Islamic bank returns. In this study, we employ sample composed by 14 Islamic banks during the period from March 31, 2004 to March 18, 2014. We devise the period of study into three periods before the crisis (from March 31, 2004 to December 31, 2007), during the financial crisis of 2008 (from January 01, 2008 to December 30, 2011), and after the financial crisis (from January 02, 2010 to March 18, 2014).

For the econometric methodology, we use 3SLS models (Tri Stages Least Square models) to estimate the CAPM and Fama and French models. The empirical finding show that that the market risk (Mkt) has a negative shock on stock return of Islamic banks characterized by small sizes and a positive impact on banks with big sizes in the case of two models; CAPM and Fama and French. The risk of size (SMB) has a positive effect on small Islamic banks and a negative impact on banks with big sizes. Finally, the risk related to the market value (HML) has a positive shock on small and large Islamic banks.

The rest of the paper is organized as follow; in Section 2, we present a review of related literature on the determinants of stock returns using the two models CAPM and Fama and French. In section 3, we describe the data used for empirical evidence. In Section 4, we expose the methodology. Section 5 shows the empirical results and a discussion of the study. Concluding remarks are presented in section 6.

2. Literature review

The banks' performance in the financial markets is still an important issue that requires study and research in particular with the presence of Islamic banks. In this part, we will present a review of the literature regarding the CAPM model application and Fama and French model in the financial market.

CAPM allows for a positive linear relationship between the profitability of a security and its systematic risk. Several empirical studies have addressed the CAPM. Various studies have confirmed on its validation as the Black studies, Jensen and Scholes (1972), other studies such as studies of Fama and French (1992) confirmed its invalidation.

The model of Fama and French is an extension of the Capital Asset Pricing Model (CAPM), it allows expressing the performance of a financial asset and giving as much information to properly measure and predicting the performance, which will give a better valuation of assets. In the FF model, there are three factors that can influence the performance of the assets: the premium market risk, the ratio Book Value/Market Value (VC/VM ratio) and Market capitalization (CB).

Banz (1981) studied the model of CAPM from a sample of companies listed on the New York Stock Exchange (NYSE), he found that the market risk represented in the CAPM is not the only factor explaining stock returns. He is the first author to demonstrate a negative relationship between the profitability of securities and size of companies measured by market capitalization.

On another side, Fama and French (1992, 1993) conducted a study on the US market and found that the two added variables (market capitalization and VC/VM) can explain a significant portion of profitability. The results obtained by these researchers say these two added variables are capable of giving a performance much better explanation than the market portfolio.

Comparing these variables (market capitalization and VC/VM ratio), Fama et French (1993) noticed that the VC/VM ratio is statistically significant; and the VC/VM ratio has a more powerful effect, and dominant to the Market Capitalisation as to influence the behavior of securities. This means that companies with VC/VM ratio the most important should be associated with high rates of expected return.

Several researchers have applied the model of Fama and French on the French market namely Molay (2000), Bellalah and Besbes (2006). These researchers found that the market portfolio is more important compared to the Market Capitalisation and VC/VM ratio. On the other hand, other researchers have applied this model to the Canadian market (L'Her et al., 2002; Francoeur, 2006; Carmichaely et al., 2007). L'Her et al. (2002) verified the presence of the size effect and VC/VM ratio. Moreover, Carmichael et al. (2007) added the momentum factor to the model of Fama and French. They came to validate the Fama and French model and they also mentioned that Variable momentum allows better explain the performance of Canadian equities. While Francoeur (2006) has only used the Fama and French model in order to study the long-term abnormal returns.

Calvet and Leffol (1988) examined the relationship between profitability and risk in the Canadian market. These authors worked for a period from 1963 to 1982 from the case of monthly yield data of shares of the Toronto Stock Exchange. They found that the risk premium is positive, and that the gap between the estimated and observed values parameters was not statistically significant, these results are in accordance with the result of Sharpe and Lintner.

On the other hand, Black, Jensen and Scholes (1972), worked with portfolios to test the CAPM, they used data on monthly stock returns over a period from 1926 to 1966. They estimated the beta each of the first title, then, they have them grouped into 10 portfolios, classifying them according to their beta ascending order. Finally, they applied the regression formula of the approach with time series (regression of portfolio risk premium on the market risk premium).

With this analysis, the results obtained show that the constant positive and was significantly different from zero when beta is less than 1 and it is negative when it is larger than 1, and that the beta coefficient was significantly lower the average market risk premium.

In addition, other studies by Douglas (1968) and Lintner (1965), which have focused on testing whether the systematic risk is the only factor that significantly influences the performance of stocks. For this, they have worked on quarterly performance data 616 companies for a period that goes from 1926 to 1960, Douglas (1968) arrived at the conclusion that the average yield for each security was more affected by the variance by the systematic risk. Lintner (1965) analyzes the effect of systematic risk and unsystematic risk effect on the average yield of each title, came to the conclusion that the yield of a security positively depended on two types of risk (systematic and unsystematic). The results of these two authors are in contradiction with the results supported by the CAPM; their studies were among the first empirical studies to reject the claims of the latter model.

Following the publication of the study by Fama and French (1992), various studies were proposed in response to criticism of the CAPM such as Black's (1993) and Chan and Lakonishok (1992).

Thus, in their work, Chan and Lakonishok (1992) made various empirical tests for the analysis of the theory of the risk premium of the CAPM. Both authors analyzed the monthly differences between the estimated risk premium (with their model) and the risk premium observed for a period between 1932 and 1991. They reached a conclusion that the results obtained did not allow to reject the theory of the risk premium of the CAPM, without confirm.

Various empirical tests of the CAPM have been made in European countries. One of the first tests is that performed by Pogue and Solnik (1974). Their study focuses on daily data of 229 shares for a period which runs from March 1966 to March 1971 for seven countries (Germany, Belgium, France, Italy, Netherlands, UK and Switzerland). According to the results of their work, there is a positive correlation between the average risk of the shares and their yields, and betas are highly statistically significant in all countries and they explain to a horizon of one month between 30 % and 60% of the risk premium observed in European countries (Pogue and Solnik, 1974).

More recent studies, such as Basu and Chawla (2010) tested the validity of the CAPM in the Indian market. They used data from weekly returns of shares of 50 companies that cover a period from January 2003 to February 2008. The authors conclude that the model is flawed in explaining the risk premium of the Indian market. According to them, this failure could be attributed to factors such as the imperfection of the stock index selected to approximate the market portfolio or tax effects.

Another study, we can mention is that of Michailidis et al. (2006), which conducted an analysis on the Athens Stock Exchange for a period from 1998 to 2002. This study aimed to test the validity of CAPM for the Greek financial market. These authors concluded that the results of the tests did not allow rejecting the validity of the CAPM.

For the literature on Islamic markets, Ismail and Shakrani (2003) examined the relationship between return and beta for Islamic Fund in Malaysia. They found a significant relationship between the beta and the risk premium, while the analysis of conditional CAPM allows generating a significant positive relationship between beta and returns. Their findings also suggest that Islamic investment funds investors are risk averse because of their willingness to invest in the indices that have a low level of risk.

Raphie and Roman (2011) studied the risk and return of 145 Islamic funds (Islamic equity funds) during a period from 2000 to 2009. By using the version of Jensen (1968) of the CAPM, they estimated performance adjusted risk (alpha) and the systematic risk (beta) for each Islamic fund. The results indicated that Islamic funds are underperforming as conventional funds during the period 2000 to 2009. According to the result of Hayat and Kraeussl (2011), they showed that this underperformance is increased during the crisis.

The application of CAPM on Islamic financial market makes finding difficulties at the risk-free asset. In fact, the CAPM includes the risk-free asset Rf. This concept does not exist in the Islamic financial system, while efforts have been made to the replacement or removal of the risk-free asset Rf.

According Tomkin and Karim (1987), elimination of Rf is essential. According to them, the interest does not exist in the Shari'ah, for it can be removed f and the equation becomes as follows:

$$K = \beta R_m \qquad (1)$$

Hanif (2011) presented a capital asset pricing model Sharia compliant '(SCAPM), the purpose of his article is to test the explanatory power of CAPM and SCAPM in Pakistan. To determine the most appropriate model in the case of Pakistani markets, Hanif used a sample of 100 firms for a period of nine years (July 01, to June 10). The results of the study suggest that (SCAPM) has slightly better explanatory power than traditional CAPM.

Hanif has developed two equations to test the model of asset pricing (CAPM) and the traditional pricing model Shari'a compliant assets (SCAPM):

$$R_p\text{-}R_f = \beta_0 + \beta\,(R_m\text{-}R_f) + \varepsilon_t \quad (2)$$

$$R_p\text{-}N = \beta_0 + \beta\,(R_m\text{-}N) + \varepsilon_t \quad (3)$$

where, β_0 is the intercept, R_p represents the return, R_m market performance, β is beta, N is inflation, εt is the random error and R_f is the risk free rate. Hannif used the inflation rate instead of the risk-free rate for Islamic financial assets.

Lean and Parham (2012) studied the relationship between return and market risk for Islamic stocks in Malaysia; they came to provide further guidance on the performance of Islamic equity market in Malaysia.

2. Data

This study is devoted to the study of Islamic banks on the existing financial market in the Gulf countries and the countries of MENA. As for the study period, she began to April 2004 to March 2014, or 2,567 days.

Our study covers a more recent period than those covered by the other studies as she was interested in the study of Islamic banks listed. We will divide the study period into three periods:

- ✓ Before the financial crisis from 31/03/2004 to 31/12/2007 (1-947) to be 947 days.
- ✓ The crisis period from 01/01/2008 to 30/12/2010 (948-1741) are 794 days.
- ✓ After the crisis period from 02/01/2011 to 03/18/2014 (1742-2567), were 826 days.

Our sample consists of 14 Islamic banks operating in different countries; Saudi Arabia, Bahrain, Qatar, United Arab Emirates, Kuwait, Malaysia and Egypt (either 35938 observations). The list of banks used in this paper is summarized in table 1.

Table 1: List of Islamic banks

Country	Bank	Code
Bahreïn	Bahrain Islamic Bank	1
Bahreïn	Gulf Finance House	2
Egypte	Faisal Islamic Bank	3
Egypte	Al Baraka Bank Egypt	4
Kuwait	Kuwait International Bank	5
Kuwait	Boubyan Bank	6
Kuwait	Kuwait Finance House	7
Malaisie	Bimb Holding	8
Qatar	Qatar International Islamic Bank	9
Qatar	Qatar Islamic Bank	10
Saudi Arabia	Rajhi Bank	11
UAE	Dubai Islamic Bank	12
UAE	Abu Dhabi Islamic Bank	13
UAE	Sharjah Islamic Bank	14

Unlike most previous research that has focused on banks in the developed countries (the French banks, American, Canadian ...), our study will focus on the existing banks in emerging countries.

These financial and accounting data used are extracted from a database, financial publications and annual reports of Islamic banks. It contains financial and accounting information on all the sample banks in the period from 2004 to 2014. The narrowness of listed Islamic financial markets stock market has led us to retain only 14 banks over the period studied.

3. The model

In our paper, we will consider two types of model:

3.1.The CAPM

The CAPM model is presented as follows:

$$\boldsymbol{R_{it} - R_{ft} = \alpha_i + \beta_i Mkt_t + \varepsilon_{it}} \qquad \textbf{(4)}$$

where, $R_{it} - R_{ft}$ is the excess return of the portfolio (bank) i relative to the risk-free rate at time t. $Mkt = R_{mt} - R_{ft}$ is the proxy for market risk at time t. β_i is the coefficient estimate on the Mkt variable time t. α_i is the abnormal return of portfolio i at time t. ε_{it} is the residual term on the portfolio i at time t.

3.2.The uni-scale model of Fama and French (1993)

The uni-scale model of Fama and French (1993) is presented as follows:

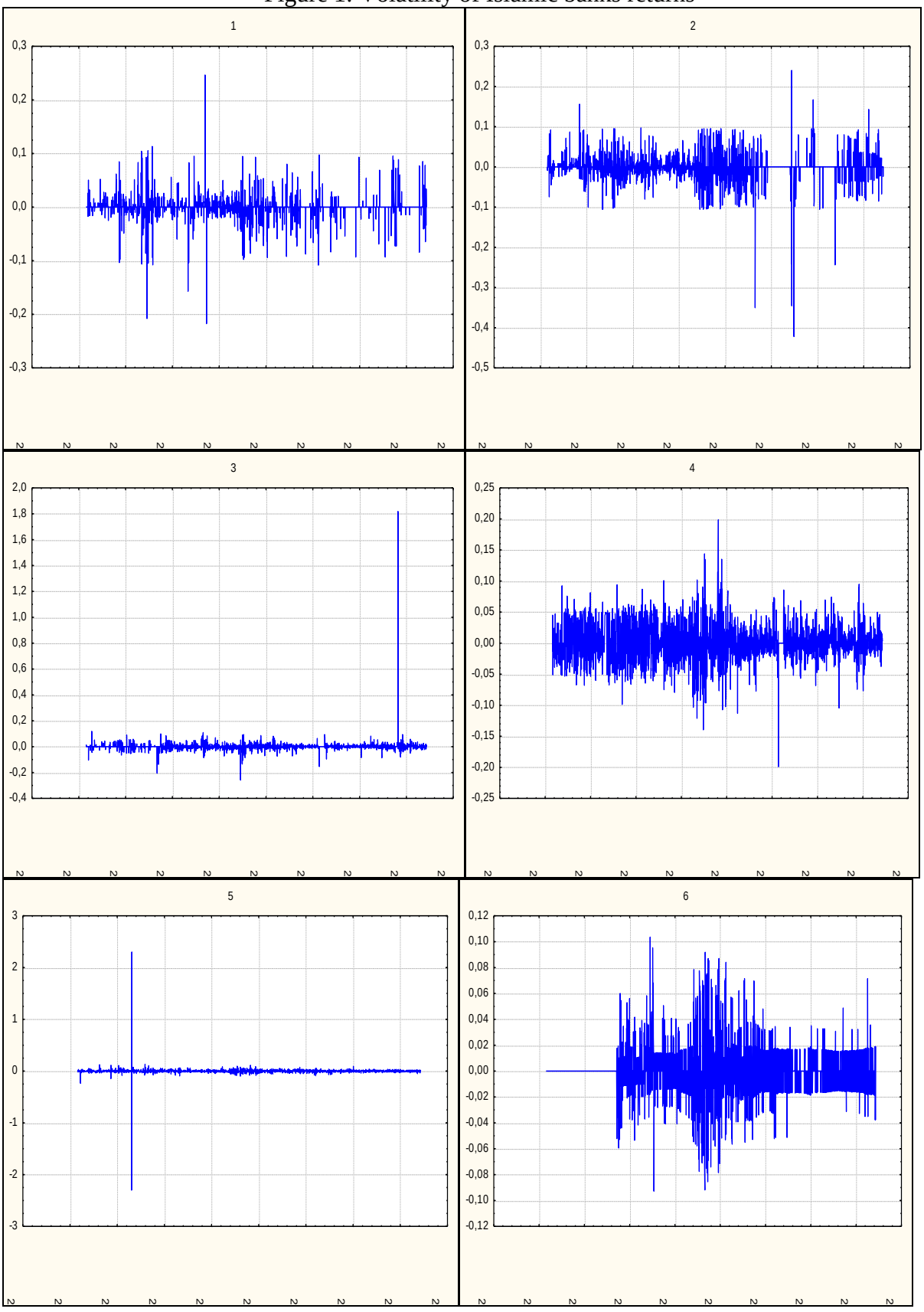
$$\boldsymbol{R_{it} - R_{ft} = \alpha_i + \beta_i Mkt_t + \gamma_i SMB_t + \delta_i HML_t + \epsilon_{it}} \qquad \textbf{(5)}$$

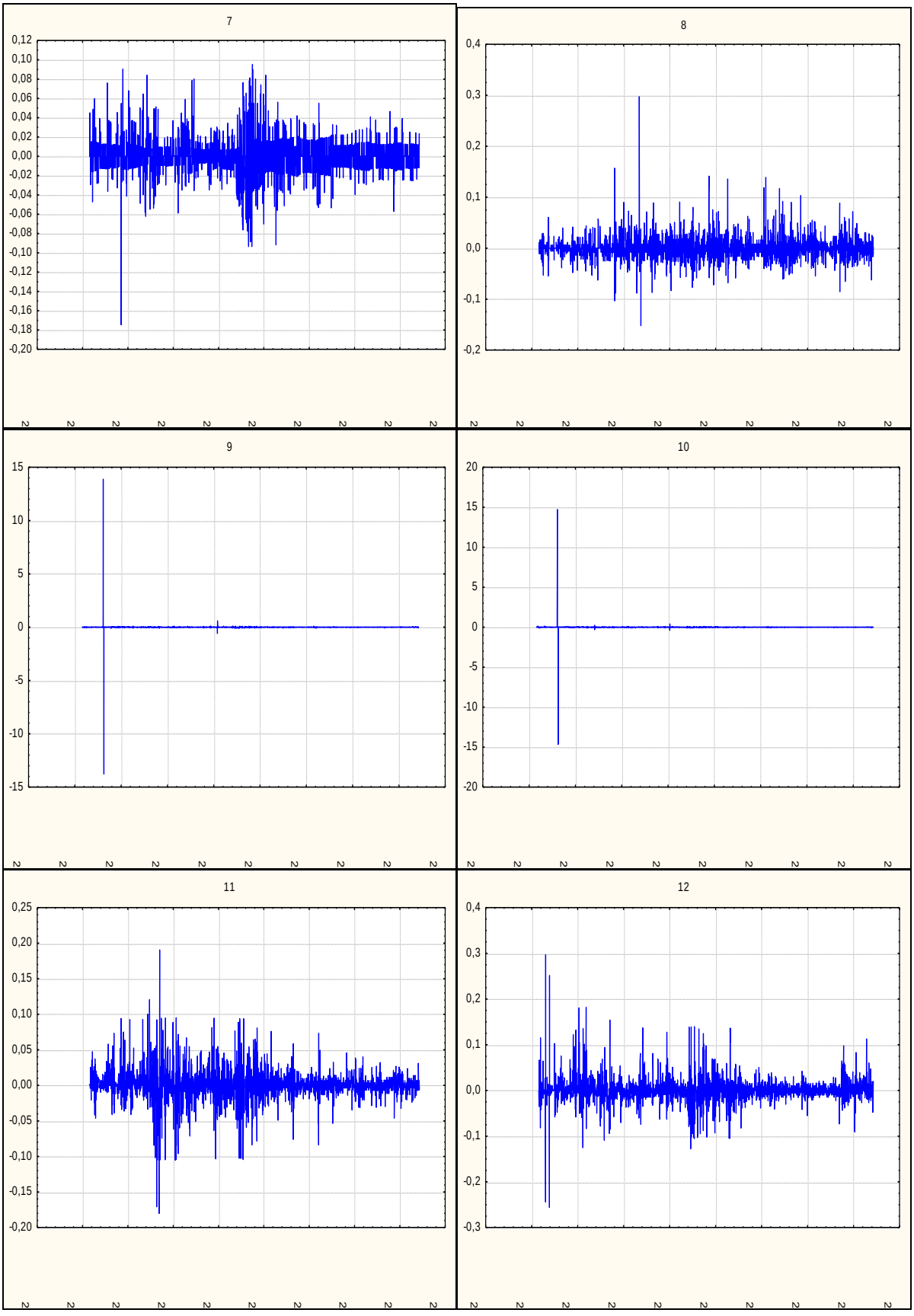
where, $R_{it} - R_{ft}$ is the excess return of the portfolio (bank) i relative to the risk-free rate at time t. $Mkt = R_{mt} - R_{ft}$, SMB and HML are the proxies for market-related risk, size and value at time t, respectively.β_i ,γ_i and δ_i are the coefficients to be estimated in relation to MktSMBet HML variables at time t, respectively. α_i is the abnormal return of portfolio i at time t. ϵ_{it} is the residual term on the portfolio i at time t.

We will use the technical 3SLS (Tri Stages Least Square) to estimate the different models used.

We present in the figure 1 the volatility of the Islamic banks returns. Following to this figure, we can show that the Islamic banks returns are very volatile.

Figure 1: Volatility of Islamic banks returns

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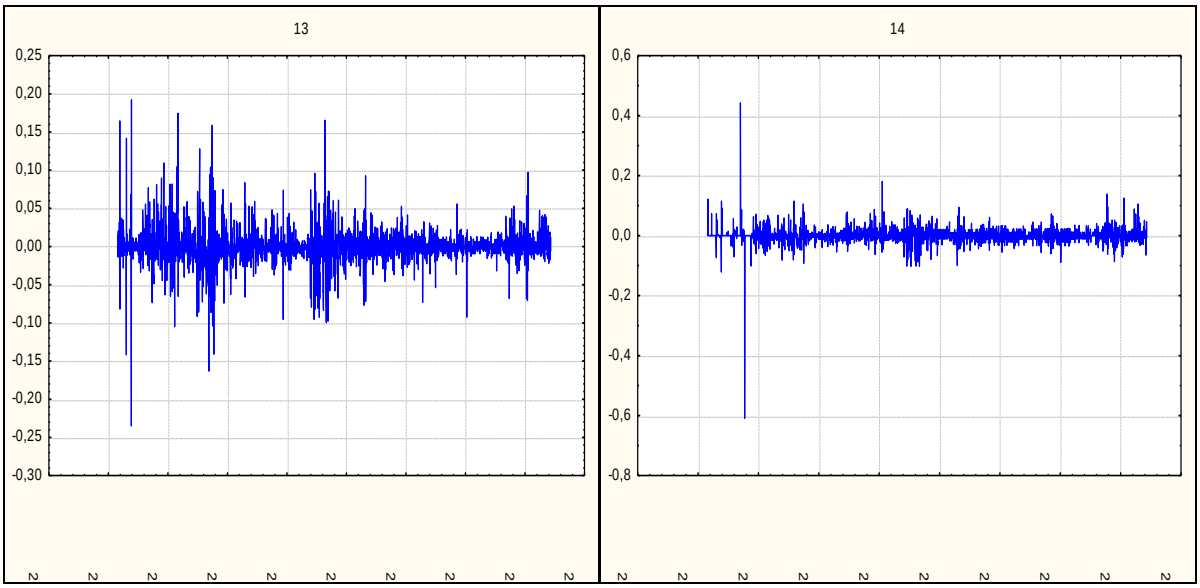

4. Empirical results

4.1.Descriptive statistics

In this part we will try to analyze and interpret the different results obtained from the estimates made on both models.

Table 2 summarizes the descriptive statistics for each variable used in our estimate. For the entire period, the variable Rit, which represents the return bank i at time t, Can reach a maximum value 14.72049. As its minimum value is (-14.65294) meaning the existence of loss yields in all withholding banks. The risk is measured by the standard deviation is 0.1537631. This corresponds to a less volatile rate of returns; it is the consequence of the principle of sharing of profit and loss that regulates the allocation of their result.

During the crisis period the average yield for Islamic banks was decrease from 0.0009817 before the crisis to (-0.0001585). This shows that Islamic banks have been affected by the crisis.

The Rmt variable, which measuring market performance, May reach a maximum the value of 21.72049. As its minimum value is (-7.652937) that verifies the existence of the returns overall deficit deductions banks. His risk is measured by the standard deviation is 3.457321. The variable Rmt also decreased during the crisis period and passes to 5.403001;

SMB variable, which measure the level of risk related to the size, Can reach a maximum value 0. As long as the minimum value is (-9.493228) for all the selected banks. The risk measured by the standard deviation is 0.2309762.

The HML variable, which measures the level of risk associated with the value, can reach a maximum value of 7.360243. As its minimum value is (-7.321449) which means the existence of loss yields in all selected banks. His risk is measured by the standard deviation is 0.2073537. HML this value is less than 1 (0.0004766). Therefore, the stock returns of Islamic banks are on average overvalued by the market.

For the three selected periods, Table 2 summarizes the descriptive statistics for each variable.

Rm, recorded a higher annual average profitability of 5.944286 to that observed for the fundamental variables SMB (-0.0489949) and HML (0.0004766). It was mentioned that L'Her et

al. (2002) found that HML has a monthly average yield (5.09%) which is higher than that of SMB (5.08%) and the premium market (4.52%). However, these authors indicate that the market premium is more volatile, it has a standard deviation (15.23%) higher than HML (12.72%) and that of SMB (10.97%).

During the three sub-periods, the portfolio has the highest average yield is that of BM. Additionally, this variable has decreased during the crisis, but it remains the highest. Arguably large Islamic banks were affected by the crisis, but they can still resist.

The most volatile portfolio is that of BH (0.4785817) before the crisis and BL (0.051637).

Table 2: Descriptive statistics

The whole period							
Variable	Average	Median	Max	Min	Std.Div	Skewness	Kurtosis
Rit	0.0002609	0	14.72049	-14.65294	0.1537631	0.8358613	8281.911
Rf	5.944403	6.7	13.95	0.6	3.453434	0.3309575	2.700706
Rmt	5.944286	6.692485	21.72049	-7.652937	3.457321	0.3315885	2.723935
SL	-0.0200704	-0.0109016	0.0490866	-0.4219944	0.0291966	-4.008231	36.18038
SM	-0.0280525	-0.0168071	0.0356272	-13.78075	0.2763946	-48.21594	2389.783
SH	-0.022603	-0.0101524	0088	-14.65294	0.2898696	-50.0918	2528.164
BL	0.0212773	0.0112741	1.818316	-0.0471468	0.0439233	27.0539	1092.713
BM	0.030309	0.017392	13.88591	-0.0249389	0.2784984	48.19011	2388.497
BH	0.0247555	0.0115936	14.72049	-0.0631997	0.2913479	49.99787	2521.832
SMB	-0.0489949	-0.0355985	0	-9.493228	0.2309762	-33.33265	1225.651
HML	0.0004766	8.74e-06	7.360243	-7.321449	0.2073537	0.2367483	1224.148
Before the financial crisis							
Variable	Average	Median	Max	Min	Std.Div	Skewness	Kurtosis
Rit	0.0009817	0	14.72049	-14.65294	.2508858	0.4856926	3170.886
Rf	6.869231	7	13.4	1.6	3.250704	0.2476863	2.686583
Rmt	6.870213	7.012713	21.72049	-7.652937	3.260341	0.2460044	2.767639
SL	-0.0198351	-0.0131062	0.0223569	-0.2173829	0.0247808	-2.581862	15.60737
SM	-0.0381307	-0.0155003	0	-13.78075	0.4540494	-29.44585	887.8934
SH	-0.0366181	-0.0134851	0.0325402	-14.65294	0.4763163	-30.5486	937.4433
BL	0.0239867	0.0176094	0.246524	-0.0103094	0.0256375	1.65458	9.634997
BM	0.041757	0.0174695	13.88591	0	0.4572481	29.47117	889.0806
BH	0.0413241	0.0168415	14.72049	-0.0477804	0.4785817	30.50692	935.7405
SMB	-0.0672172	-0.0412716	0	-9.493228	0.3779603	-20.49497	459.9297
HML	0.0002772	-0.0010318	7.360243	-7.321449	0.3387261	0.1683587	466.4577
In times of financial crisis							
Variable	Average	Median	Max	Min	Std.Div	Skewness	Kurtosis
Rit	-0.0001585	0	1.818316	-0.5878429	0.0266319	13.65611	997.0192
Rf	5.403759	5.4	13.95	0.6	3.454055	0.4498881	2.824192
Rmt	5.403001	5.404383	14.04411	0	3.45464	0.4499109	2.824084
SL	-0.0202128	-0.0098354	0.0490866	-0.4219944	0.0314975	-4.319091	38.77922
SM	-0.0221765	-0.0170944	0.0356272	-0.5878429	0.0239885	-8.921839	193.5385
SH	-0.0144142	-0.0092962	0088	-0.4053264	0.0219492	-5.056422	68.81793
BL	0.0197045	0.0092237	1.818316	-0.0471468	0.051637	26.33527	909.3359
BM	0.0236246	0.0173919	0.6023561	-0.0249389	0.026379	7.56502	146.9391
BH	0.0150871	0.0098898	0.4131551	-0.0631997	0.0225395	5.187292	68.8387
SMB	-0.0383627	-0.0324007	0	-0.6430978	0.0285294	-7.281443	131.5916
HML	0.0005966	0.0006127	0.2213675	-0.9030506	0.0336562	-11.4464	326.1027
After the financial crisis							
Variable	Average	Median	Max	Min	Std.Div	Skewness	Kurtosis
Rit	0.0005388	0	1.818316	-0.4219944	0.0246645	33.92725	2568.288

Rf	5.271185	5.4	13.95	0776	3.49906	0.9977397	3.700885
Rmt	5.271724	5.395595	14.04411	0.5330056	3.499717	0.9975178	3.700332
SL	-0.0158045	-0.0053359	0	-0.4219944	0.0308069	-6.089874	62.53035
SM	-0.0175231	-0.0161078	0.0019436	-0.1045286	0.0146972	-1.723445	7.975237
SH	-0.009729	-0.006873	0.0194811	-0.0924652	0.0118708	-2.803776	15.08879
BL	0.0184946	0.0057266	1.818316	-0.0112996	0.0672208	23.35375	622.5406
BM	0.0190431	0.0162711	0.1388364	0	0.0178647	2.491612	13.04686
BH	0.0110499	0.0082422	0.1127955	-0.0204985	0.0129551	2.648737	15.36251
SMB	-0.0305481	-0.0265694	0	-0.6430978	0.0270795	-14.50392	318.8649
HML	-0.0006846	0	0.214854	-0.9030506	0.0381705	-15.63644	380.5104

4.2. The correlation matrix

The results in Table 3 show no coefficient exceeding the tolerance limit (0.7) with the exception of the correlation coefficients between the variables, which does not cause problems when estimating the two models. By comparing our correlation coefficients with those obtained by Fama and French, we find that the correlation between the market premium and HML is (-0.38), that between SMB and HML is (-0.08) and that between the market premium and SMB is 0.32. Similarly, L'Her et al. (2002) achieved very different correlation coefficients with ours. In fact, their correlation coefficients are as follows: 0.12 (R_m-R_f and SMB), (-0.36) (R_m-R_f and HML), (-0.39) (SMB and HML).

Table 3: The correlation matrix

	Rit	Rf	Rmt	SL	SM	SH	BL	BM	BH	SMB	HML
Rit	1.0000										
Rf	0.0012 (0.8177)	1.0000									
Rmt	0.0457 (0.0000) *	0.9989 (0.0000) *	1.0000								
SL	0.0300 (0.0000) *	-0.0246 (0.0000) *	-0.0233 (0.0000) *	1.0000							
SM	0.2626 (0.0000) *	0.0004 (0.9362)	0.0121 (0.0217) **	0.0002 (0.9663)	1.0000						
SH	0.2631 (0.0000) *	-0.0036 (0.4979)	0.0081 (0.1237)	0.0016 (0.7628)	0.9806 (0.0000) *	1.0000					
BL	0.0272 (0.0000) *	0.0169 (0.0013) *	0.0181 (0.0006) *	0.0828 (0.0000) *	0.0025 (0.6407)	0.0054 (0.3069)	1.0000				
BM	0.1314 (0.0000) *	-0.0004 (0.9449)	0.0055 (0.2992)	0.0137 (0.0095) *	0.0029 (0.5856)	0.0028 (0.5964)	-0.0033 (0.5348)	1.0000			
BH	0.1371 (0.0000) *	0.0017 (0.7460)	0.0078 (0.1386)	0.0131 (0.0132) **	0.0014 (0.7917)	0.0023 (0.6577)	-0.0028 (0.5896)	-0.0010 (0.8560)	1.0000		
SMB	0.1040 (0.0000) *	-0.0040 (0.4508)	0.0006 (0.9055)	0.0267 (0.0000) *	0.8072 (0.0000) *	0.8071 (0.0000) *	-0.0541 (0.0000) *	-0.3984 (0.0000) *	-0.4178 (0.0000) *	1.0000	
HML	0.2752 (0.0000) *	-0.0014 (0.7974)	0.0109 (0.0390) **	-0.0689 (0.0000) *	0.6861 (0.0000) *	0.6999 (0.0000) *	-0.1099 (0.0000) *	0.0007 (0.8992)	0.7036 (0.0000) *	0.2745 (0.0000) *	1.0000

✓ (*), (**), and (***) are significant values in threshold level of 1%, 5% and 10%, respectively.

5. Estimation results

The panel structure is homogeneous. In this case, we will apply the method 3SLS (Tri Stages Least Square). Therefore, we estimated two models in which we adopted the variable R_{it} as a dependent variable. The results of the estimate by 3SLS the two models used are shown in Tables 5 and 6.

First, we conducted a test of the unit root panel data. Thus, we used the test Levin Lin Chu. The null hypothesis of this test is H0: all series are non-stationary and the alternative hypothesis is H1: all series are stationary. Acceptance or rejection of the null hypothesis is based on the value of the p-value. This value is compared to a 10% threshold. If the value of the p-value is less than 10%, then H0 is rejected and the value of the p-value is greater than 10%, we accept H0.

Table 4 summarizes the results of the unit root test. We noticed that the p-values of values for different variables used are below 10%. For this, one rejects H0 and thereafter all these variables are stationary.

Table 4: Test the unit root

Variables	Statistic	p-value
Rit	-1.5e + 02	0.0000
Rf	-6.7557	0.0000
Rmt	-14.9243	0.0000
SL	-1.1e + 02	0.0000
SM	-1.5e + 02	0.0000
SH	-1.5e + 02	0.0000
BL	-1.3e + 02	0.0000
BM	-1.5e + 02	0.0000
BH	-1.5e + 02	0.0000
SMB	-1.4e + 02	0.0000
HML	-1.5e + 02	0.0000

In this test the p-value is compared to 10%. If p-value <10% therefore we reject H0 and p-value> 10% then H0 is accepted. With H0: all series are non-stationary.

In addition, we conducted other tests to confirm the validity of our models and to justify the significance of the estimates. We tested the correlation between the explanatory variables and residuals. This type of test is based on the value of (Prob> chi2). If this probability is less than 5%, we accept H0 that verifies the absence of correlation between the residuals and the explanatory variables. If this probability is greater than 5%, in this case there would be a correlation between residues problem and the explanatory variables we should fix it.

In all estimated models and used for the different periods, the probability values (Prob> chi2) are all less than 5%. Therefore, we have no correlation problems between the explanatory variables and residuals.

The significance test of the model is based on the probability of Fisher. We noticed that all Fisher probabilities values are less than 5% in all estimates of both models. So we can confirm that the estimates of each model are globally significant.

We noticed that the R^2 determination coefficient for both models is greater than 0.7, so the models (1) and (2) are characterized by a good linear fit.

We conducted our research in the estimation of two models (CAPM and Fama and French) for different periods chosen:

Table 5: Estimates From CAPM

Panel A: The estimate for the whole period from 31/03/2004 to 18/03/2014						
	α_i	t (α_i)	β_i	t (β_i)	R^2	Prob> chi2
SL	-0.0200698	-130.37 *	0.0050244	5.28 *	0.7808	0.0000
SM	-0.0280024	-19.83 *	0.4259035	48.84 *	0.7622	0.0000
SH	-0.0225505	-15.23 *	0.446987	48.88 *	0.8623	0.0000
BL	0.0212781	91.87 *	0.0070059	4.90 *	0.8007	0.0000
BM	0.0303343	20.81 *	0.2144905	23.83 *	0.8156	0.0000
BH	0.0247831	16.26 *	0.234548	24.92 *	0.8170	0.0000
Panel B: The estimate for the first time: Before the financial crisis from 31/03/2004 to 31/12/2007						
	α_i	t (α_i)	β_i	t (β_i)	R^2	Prob> chi2
SL	-0.0198282	-92.19 *	0.0014175	1.65 ***	0.7702	0.0000
SM	-0.0385723	-10.15 *	0.4782568	31.55 *	0.8698	0.0000
SH	-0.0371028	-9.31 *	0.5023743	31.59 *	0.8700	0.0000
BL	0.0239667	107.68 *	0.0009581	1.08	0.8001	0.0000
BM	0.0415098	10.55 *	0.2393318	15.25 *	0.7172	0.0000
BH	0.0410392	9.97 *	0.2613232	15.92 *	0.7188	0.0000
Panel C: The estimate for the second period: The period of crisis from 01/01/2008 to 30/12/2010						
	α_i	t (α_i)	β_i	t (β_i)	R^2	Prob> chi2
SL	-0.020188	-96.77 *	0.0326711	10.84 *	0.8008	0.0000
SM	-0.0221567	-139.49 *	0.0261191	11.38 *	0.7622	0.0000
SH	-0.0143955	-99.07 *	0.0247485	11.78 *	0.7623	0.0000
BL	0.0197446	57.73 *	0.0528769	10.70 *	0.7007	0.0000
BM	0.0236407	135.17 *	0.0213616	8.45 *	0.7156	0.0000
BH	0.0151064	101.24 *	0.02549	11.82 *	0.7170	0.0000
Panel D: The estimate for the third period: After the crisis period from 02/01/2011 to 18/03.2014						
	α_i	t (α_i)	β_i	t (β_i)	R^2	Prob> chi2
SL	-0.01589	-55.91 *	0.1585565	13.76 *	0.7161	0.0000
SM	-0.0175503	-128.85 *	0.0504181	9.13 *	0.7072	0.0000
SH	-0.0097569	-88.88 *	0.0516609	11.61 *	0.7115	0.0000
BL	0.0181935	29.73 *	0.558729	22.52 *	0.7420	0.0000
BM	0.0189979	115.11 *	0.0838183	12.53 *	0.7134	0.0000
BH	0.0110166	92.06 *	0.0616933	12.72 *	0.7138	0.0000

- ✓ Significant value to a threshold level of (*) 1%; (**) 5% and (***) 10%.
- ✓ [to]The Wall test is used to test the correlation between the explanatory variables and residuals. comparing the probability of (Prob> chi2) to a threshold of 5% with H0: absence of correlation between variables.

For the CAPM model, we noticed that the variable Mkt (related to β coefficient) is statistically significant at the 1% level in four periods except the SL during the period before the crisis that is significant to a threshold 10% while during the same period BL is not significant. For the different types of banks, Mkt variable has a positive impact on the 6 selected portfolios in the four selected periods.

In this case, the level of market risk linked positively affects the stock returns of Islamic banks in the case of our sample.

Moreover, we noticed that the constant has a negative and significant impact on a threshold of 1% over the first three portfolios (SL, SM and SH) and for different periods. Similarly, this factor has a positive and significant impact on a threshold of 1% over the last three portfolios (BL, BM and BH) and for different periods. So the abnormal return has a significant impact on the stock performance of Islamic banks.

According to the CAPM, the smaller banks SL, SM and SH have a negative abnormal return for Islamic banks for the entire period. α and β the coefficients of Islamic banks decreased during the crisis period. For example, the HS portfolio increased from 0.5023743 to 0.0247485.

The second model used is that of Fama and French. Table 6 shows the estimate of the model.

Table 6: Estimating of the Fama and French model

Panel A: The estimate for the whole period from 31/03/2004 to 18/03/2014										
	α_i	t (α_i)	β_i	t (β_i)	γ_i	t (γ_i)	δ_i	t (δ_i)	R^2	Prob> chi2
SL	-0.0197662	-125.89 *	0.0086296	8.79 *	0.0060578	8.77 *	-0.0133078	-16.78 *	0.8091	0.0000
SM	0.0107948	21.60 *	0.0961698	30.79 *	0.798985	363.50 *	0.6506963	257.77 *	0.8880	0.0000
SH	0.0178748	36.37 *	0.0944861	30.76 *	0.8327906	385.35 *	0.7045682	283.88 *	0.9015	0.0000
BL	0.0210337	89.36 *	0.0160988	10.94 *	-0.0052526	-5.07 *	-0.0249689	-21.00 *	0.8160	0.0000
BM	0.0045734	3.38 *	0.2511763	29.71 *	-0.524803	-88.21 *	0.1100929	16.11 *	0.8917	0.0000
BH	-0.0166154	-33.38 *	-0.0696294	-22.38 *	-0.8319956	-380.11 *	1.257132	500.10 *	0.9000	0.0000
Panel B: The estimate for the first time: Before the financial crisis from 31/03/2004 to 31/12/2007										
	α_i	t (α_i)	β_i	t (β_i)	γ_i	t (γ_i)	δ_i	t (δ_i)	R^2	Prob> chi2
SL	-0.0217415	-103.15 *	0.0038105	4.18 *	0.0002877	4.45 *	-0.0045711	-6.20 *	0.8091	0.0000
SM	0.014551	14.22 *	0.0888356	20.07 *	0.8030319	258.49 *	0.6629833	185.24 *	0.8880	0.0000
SH	0.0188753	18.84 *	0.0868117	20.03 *	0.8373282	275.30 *	0.7167011	204.54 *	0.9015	0.0000
BL	0.0234436	114.28 *	0.0034147	3.85 *	0.0016531	2.65 *	-0.0057831	-8.06 *	0.8160	0.0000
BM	0.0056169	1.95 **	0.2538341	20.39 *	-0.5254633	-60.14 *	0.1082782	10.76 *	0.8917	0.0000
BH	-0.0171902	-16.93 *	-0.0794562	-18.09 *	-0.8353999	-271.04 *	0.272921	358.48 *	0.9000	0.0000
Panel C: The estimate for the second period: The period of crisis from 01/01/2008 to 30/12/2010										
	α_i	t (α_i)	β_i	t (β_i)	γ_i	t (γ_i)	δ_i	t (δ_i)	R^2	Prob> chi2
SL	0.0061837	25.79 *	0.0287593	14.30 *	0.67847	133.77 *	-0.5811294	-135.11 *	0.8091	0.0000
SM	-0.0062457	-25.96 *	0.0291358	14.43 *	0.4138028	81.31 *	-0.0571202	-13.24 *	0.8880	0.0000
SH	-0.005091	-22.27 *	0.029312	15.28 *	0.2443054	50.52 *	0.119401	29.12 *	0.9015	0.0000
BL	-0.0107796	-38.64 *	0.0269969	11.53 *	-0.8105143	-137.35 *	-0.9871945	-197.27 *	0.8160	0.0000
BM	0.005528	21.06 *	0.0195459	8.88 *	-0.4697243	-84.61 *	0.1533638	32.57 *	0.8917	0.0000
BH	0.0004615	2.18 **	0.0274748	15.49 *	-0.3769272	-84.28 *	0.3124801	82.39 *	0.9000	0.0000
Panel D: The estimate for the third period: After the crisis period from 02/01/2011 to 18/03/2014										
	α_i	t (α_i)	β_i	t (β_i)	γ_i	t (γ_i)	δ_i	t (δ_i)	R^2	Prob> chi2
SL	0.0062463	25.68 *	0.0276388	13.63 *	0.6838211	132.82 *	-0.589979	-134.22 *	0.9091	0.0000
SM	-0.0061981	-25.45 *	0.0283153	13.95 *	0.4195186	81.40 *	-0.0567794	-12.90 *	0.8880	0.0000
SH	-0.005753	-27.65 *	0.0265901	15.33 *	0.216616	49.20 *	0.0787132	20.94 *	0.9015	0.0000
BL	-0.0114534	-42.87 *	0.0240083	10.78 *	-0.8365895	-147.95 *	-0.026434	-212.61 *	0.8160	0.0000
BM	0.0056062	21.03 *	0.01918	8.63 *	-0.467143	-82.80 *	0.1506693	31.28 *	0.8917	0.0000
BH	0.0005118	2.42 **	0.0260933	14.82 *	-0.3699701	-82.77 *	0.3050883	79.94 *	0.9000	0.0000

- ✓ Significant value to a threshold level of (*) 1%; (**) 5% and (***) 10%.
- ✓ [to]The Wall test is used to test the correlation between the explanatory variables and residuals. comparing the probability of (Prob> chi2) to a threshold of 5% with H0: absence of correlation between variables.

Jensen alpha (α) is the measure of over or under performance and has been widely applied to assess the performance of the shares. If alpha is greater than (less than) 1, performance would consistently positive (negative). A positive alpha is generally interpreted as a measure of high performance quality and a negative alpha reflecting lower performance.

For the Fama and French model, we found that alpha has a negative and significant impact on a threshold of 1% of both types of SL and BH banks for the period before the crisis. It is transformed into a positive impact during the crisis and after the crisis period. Unlike banks kinds of SM, SH, BL and BM, this variable has a positive and significant impact on a threshold of 1% and negative changes sign during the crisis period.

Because the abnormal return has a significant impact (positive and negative) on the performance of the portfolios of Islamic banks. The negative sign denotes a lower performance explained by the presence of uninformed investors on the market.

The Mkt variable is statistically significant at the 1% level in four periods. For the different types of banks, Mkt variable has a positive impact on the 5 types selected; SL, SM, SH, BL and BM during the four selected periods. This impact is negative and significant in the case of BH type of bank for the four periods. In this case, the level of market risk positively affects the performance of Islamic banks in our sample.

Also, we noticed that the SMB variable that measures the risk related to the size has a positive and significant impact on a threshold of 1% for the first three (SL, SM and SH) and during different periods selected in this study.

Similarly, we noticed that this variable has a negative and significant impact on a threshold of 1% over the last three types of banks (BL, BM and BH) and during different periods. So, the risk related to the size has a significant impact (positive / negative) on the stock performance of Islamic banks.

The HML variable measuring the risk value has a positive and significant impact on a threshold of 1% for portfolios SM, SH, BM and BH for different periods.

Similarly, this variable also has a negative and significant impact on a threshold of 1% on the SL and BL banks in the different periods. So the risk value has a significant impact (positive / negative) on the stock performance of Islamic banks.

6. Conclusion

The main objective of this paper is to examine the determinants of the Islamic bank returns. Then, we employ the Capital Asset Pricing Model *(*CAPM*)* and the model of Fama and French to study the determinants of the Islamic bank returns.

Then, we use sample composed by 14 Islamic banks (in the MENA countries) during the period from March 31, 2004 to March 18, 2014. We devise the period of study into three periods before the crisis (from March 31, 2004 to December 31, 2007), during the financial crisis of 2008 (from January 01, 2008 to December 30, 2011), and after the financial crisis (from January 02, 2010 to March 18, 2014).

For the econometric methodology, we use 3SLS models (Tri Stages Least Square models) to estimate the CAPM and Fama and French models.

The empirical results show that the market risk (Mkt) has a negative shock on stock return of Islamic banks characterized by small sizes and a positive impact on banks with big sizes in the case of two models; CAPM and Fama and French. The risk of size (SMB) has a positive effect on small Islamic banks and a negative impact on banks with big sizes. Finally, the risk related to the market value (HML) has a positive shock on small and large Islamic banks.

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