The Impact Of The Global Financial Crisis On The Financial Institutions: A Comparison Between Islamic Banks (IBs) And Conventional Banks (CBs)

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Abstract

The aim of this study is to determine the impact of the current global financial crisis on IBs compared to the CBs relying on accounting ratios. Firstly, we introduce 26 financial ratios in the stepwise Logit model to determine whether it is possible to distinguish between the two types of banks in the international context based on financial characteristics. Over 110 bank-year observations, we found that accounting ratios are good discriminators between IBs and CBs in the international context. Secondly, to determine the impact of the global financial crisis on IBs compared to the CBs, we introduce a new variable CRISIS which is a time condition that distinguishes between the crisis period and the pre-crisis period.

Our main empirical results obtained from Logit analysis show clearly that IBs are more stable and immunized against the 2007-2008 crisis due to the requirements of the Shariaa.

Key words: Financial crisis, IBs, accounting ratios.

1. Introduction

The recent financial crisis is commonly viewed as the worst financial crisis since the 1930s Great Depression. This disaster led many economists to reconsider the soundness of the capitalistic Economic System. In fact this disaster has seized up money markets and brought about anxiety regarding the fate of the global economy and the current financial system (Shapra, 2008).

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In this turbulent context, a number of IBs’ experts and officials as well as financial institutions have confirmed that IBs have not been affected by the global financial crisis, and that any effects would be limited due to the nature of Islamic banking. IBs are organized and operate under the principles of Islamic law (the Sharia). In the following we suggest to describe the main principles of Sharia.

- **The Prohibition of interest ‘Riba’**: Riba leads to money being made from money which is an unacceptable practice in the Islamic finance. In Islam, money is an exchange instrument that has no value in itself. It is argued that those who place their money as a deposit in a bank or lend it to gain interest earn money without effort or risk.

- **Principle of « PLS »**: From the operating contract of participation, a system based on the Sharing of Profits and Losses (PLS) has been established. This system allows combining the financial capital to the human one.

- **Forbidding Gharar**: The term Gharar generally means risk, hazard or uncertainty. It is originated out of deception through ignorance by one or more parties to a contract.

- **Prohibition of Haram**: The prohibition of the Haram means that the Muslim cannot handle goods deemed illegal by the Shariaa (alcohol, tobacco, pornography, "traditional" banking sector etc...). The aim of Sharia in this regard is to promote ‘ethical’ investments that again do not affect people and society.

- **The « Asset Backing »**: The "Asset Backing" or backing of a tangible asset appears as one of the principles that make an Islamic Finance Company recognized for its potential in terms of stability and risk control. Indeed, this principle requires that any contract be attached to an activity that is tangible especially reassuring about the disconnection problems in the financial sphere to the real economy.

This paper studies the impact of the recent global crisis on IBs compared to CBs based on bank’s financial characteristics. It is organized as follows: following introduction and rational of this study in section 1. Section 2 reviews the literature as well as the hypothesis examination. Section 3 outlines the research methodology whereas section 4 presents the results of this study. Ultimately, the Conclusion and the Policies are provided in Section 5.

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*Riba is an Arabic word which means any increase or growth in a loan that must be paid by the debtor to the lender, regardless of whether the increase is large or small.*
2. Review of the literature and hypothesis

A review of the previous research shows the existence of a great deal of research which compared Islamic banking to the conventional banking. Some of this research has used financial ratios.

(Karim and Ali, 1989) suggest that during economic-expansion periods, it is preferable for IBs to obtain funds from the depositors rather than the shareholders. When the return on equity (ROE) is combined with the requirement of risk-sharing, it should be higher for IBs than for the CBs. (Rosly and Abu Baker, 2003) examined six financial ratios for Islamic and mainstream banks in Malaysia for the years 1996-1999. They found that return on assets (ROA), profit margin (PM), and net operating margin (NOM) is statistically more significant for IBs than for CBs.

However, (Nienhaus, 1998) examined the separate financial statements of IBs which operate in different countries. He concluded that the IBs were less profitable than the CBs. Moreover, (Abdul Samad and Kabir, 1999) analyzed a group of financial ratios to compare the performance of the Malaysian Islamic bank (BIMB) over the period 1984-1997 compared to a group of eight CBs. And generally found any difference in the performance between the two types of banks and suggest that bankers’ lack of knowledge was the main reason for slow growth of loans under profit sharing.

Assuming that the first possibility is more likely, the proposed test is as follows:

**Hypothesis 1-a. IBs are more profitable than CBs.**

(Rosly and Abu Baker, 2003) focused their study on six financial ratios of Islamic and mainstream Banks in Malaysia for the years 1996-1999. They found that the operating efficiency ratios and the use of assets are statistically lower for IBs than for the CBs.

(Yudistira, 2003) uses the data-envelopment analysis to show that 18 IBs are less cost-efficient than the CBs. Moreover, (Olson and Zoubi, 2008) found that the IBs are less efficient than the CBs.

However, the study of (Mokhtar and al.,2006) investigates the efficiency of the full-fledged IBs, Islamic windows and CBs in Malaysia. The study measures the technical and cost efficiency of IBs using the stochastic frontier approach. The findings show that, on average, the efficiency of the overall Islamic banking Industry has increased the period of the study compared to CBs. The study also reveals that full fledged IBs are more efficient than Islamic windows while Islamic Windows of foreign banks tend to be more efficient than those of domestic banks. The hypothesis is stated as:
Hypothesis 1-b. IBs are less efficient than the CBs.

(Abdul Samad and Kabir, 1999) suggest that BIMB is relatively less risky compared to a group of 8 CBs over the 1984-1997 period. While (Olson and Zoubi, 2008), by distinguishing between IBs and CBs based on accounting ratios, suggest that greater risk may explain the higher profitability of the IBs.

Assuming that the first possibility is more likely, the hypothesis shall be stated as:

Hypothesis 1-c. IBs are less risky than CBs.

Given the differences between the two types of banks, an important issue may be posed which is whether we can distinguish between the two types of banks using only accounting ratios. Olson and Zoubi (2008) introduce twenty-six ratios of IBs and CBs in the stepwise logit model during the period 2000-2005. They found that bank-measuring characteristics such as profitability ratios, efficiency ratios, asset-quality indicators, and cash/liability ratios are good discriminators between IBs and CBs in the GCC region.

It should be important to test this question out of the GCC region according to the big international interest according to the IBs in the context of current financial crisis. Our testable proposition is the following:

Hypothesis 1. Financial ratios can be used to distinguish between the Islamic and the CBs in the international context.

In the context of the recent financial crisis, an important strand of conceptual studies puts forward the Islamic financial system as a solution for the financial crisis and an alternative for the actual system (eg. (Shapra, 2008), (Shahid, 2009) (Ahmad, 2011)...).

(Ahmad, 2011) examines what led Australia to look for opportunities to expand its exports and imports of financial services in the aftermath of the global financial crisis. The approach for his study is to promote opportunities for Islamic finance in Australian market but the attempts have not been made to make any comparison analysis of the effects of financial crisis on Islamic financial sector in Australia or otherwise in the aftermath of the worst crisis the world has seen in 2008 since the Great Depression in the 1930s. This was due to part of its searching for an alternative to conventional finance which had slowed the Australian economy significantly during this global downturn, although it is the only OECD country not to have had a ‘recession’ in 2008-09 and also to Australia’s vision to join countries such as Egypt and South Korea in seeking to ease barriers to Islamic finance products.
While, another strand of empirical studies determines the impact of the current financial crisis on the IBs compared to the CBs. The most important is the study by IMF (Hasan and Dridi, 2010). In this research, the impact of the crisis was assessed but using bank-level data covering 2007-2010 for about 120 IBs and CBs in eight countries – Bahrain (including offshore), Jordan, Kuwait, Malaysia, Qatar, Saudi Arabia, Turkey, and the UAE. The key variables used to assess the impact are the changes in profitability, bank lending, bank assets, and external bank rating. The cited IMF study reports that the first stage of the crisis, during 2007 and 2008, favored the Islamic banking system compared with the conventional one. IBs performed better than CBs in 2008 in terms of profitability, credit and asset growth. The IBs’ profitability crunch was less than 10 percent, whereas the CBs’ profitability slumped more than 35 percent in 2008 compared with 2007. However, weaknesses in risk-management practices in some IBs led to larger declines in profitability compared to CBs in 2009.

Considering the country specific scenario, in 2008, IBs fared better in all countries in the sample except Qatar, the UAE, and Malaysia. In Saudi Arabia, Bahrain offshore, Jordan, and Turkey, the change in profitability was significantly more favorable for IBs. In 2009, IBs fared clearly worse in three countries. In Bahrain (including offshore), and the UAE, the profitability of IBs declined significantly more than that of CBs, while in Qatar the increase in IB’s profitability was significantly lower than that of CBs.

(Chazi and Syed, 2009) examine the way Islamic financial institutions dealt with the recent financial problems in terms of risk management. For this issue, 27 IBs and the same number of CBs selected from a wide range of countries around the world were analyzed. The capital ratios, based on the Basel Committee, are the primary tools used to analyze the riskiness of the Islamic and CBs. The focus on capital ratios is relevant in light of changes in banks' balance sheets due to significant write-offs that caused a huge credit crunch in the western world. Capital ratios are considered as a reliable source in predicting potential bankruptcies. The paper shows that IBs are maintaining better capital ratios than to their conventional counterparts.

With this paper we hope to contribute to the emerging literature on this topic by determining the impact of the global financial ratios on IBs compared to CBs using the financial ratios.

The hypothesis can be stated as:
Hypothesis 2. The IBs are less affected by the recent financial crisis.

3. Research methodology

3.1-Data and sample

To reflect the impact of a global financial crisis of the present kind, we have selected a number of IBs and CBs from different regions in the world. In fact, most part of selected banks are International with subsidiaries operating in many countries around the world. However, the data set excludes multinational banks (e.g. HSBC, Citicorp, and Bnp Paris-bas) that have Islamic windows.

Whenever possible, we downloaded annual reports from the websites of each bank. These annual reports comprised the income statement, the statement of change in stockholders' equity, the balance sheet, the cash-flow statement, and the notes to the financial statements. For international banks we have taken the consolidated financial statements of the group.

As shown in Table 1, we have collected 110 observations, of the two types of banks operating in many countries around the world during the period 2005–2008.

<table>
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<td>28</td>
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<td>28</td>
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</tbody>
</table>

10 Annual reports among which 4 prior to 2005, 2 prior to 2006, 2 prior to 2007 and 2 prior to 2008 were not readily electronically available.

There are 59 observations related to CBs and 51 observations to IBs. Our sample contains 26 banks (15 conventional and 11 Islamic) for 2005, 28 banks (15 conventional and 13 Islamic) for both 2006 and 2007, and 28 banks (14 conventional and 14 Islamic) in 2008.

CBs have adopted the financial accounting rules established by the International Accounting Standards Board while IBs use the financial accounting rules established by The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI). There are some differences between AAOIFI standards and IAS standards, such as the more stringent disclosure requirements imposed on CBs and the prohibition of some activities under AAOIFI standards. However, all banks in our
sample follow IAS in preparing their financial statements, so it should be possible to make meaningful comparisons between the accounting ratios of the conventional and the IBs. Moreover, comparing data across the world should not cause any particular problems.

3.2- Research Variables

In our research we have used twenty-six accounting ratios on one hand and the variable ‘Crisis’, on the other.

The 26 financial ratios used in this study are defined in Table 2. They fall into five general categories: profitability, efficiency, asset quality, liquidity, and risk.

**Table 2 : accounting ratios**

**Bank profitability ratios**

1. **ROA**=return on assets =NI /ATA=net income/ average total assets
2. **ROE**=return on equity=NI /SE=net income/ average stockholders’ equity
3. **PM**=profit margin=NI /OI=net income/ operating income
4. **ROD**=return on deposits=NI /ATD=net income/ average total customer deposits
5. **ROSC**=return on shareholder capital=NI /SC=net income/ shareholder contributed capital
6. **NOM**=net operating margin=OI /IN=operating profit or income/ interest income

**Bank efficiency ratios**

7. **IIE**=interest income to expenses=(IN−IE) /ATLA=(interest income−interest expenses) / average total loans and advances
8. **OEA**=operating expense to assets=OE/ATA=operating expenses/ average total assets
9. **OIA**=operating income to assets=OI /ATA=operating income/ average total assets
10. **OER**=operating expenses to revenue=OE/OI=operating expenses/ operating income
11. **ATO**=asset turnover=IN/ATA=interest income/ average total assets
12. **NIM**=net interest margin=(IN−IE) /ATA=( interest income− interest expenses) / average total assets
13. **NNIM**=net non-interest margin=(NIN−NIE)/ATA=( non-interest income−non-interest expenses) / average total assets
Asset-quality indicators

14. **PEA** = provision to earning assets = PLL/ATLA = provision for loan losses / average total loans and advances

15. **APL** = adequacy of provision for loans = ALL/ATLA = allowance for loan losses at the end of the year / average total loans and advances

16. **WRL** = write-off ratio = WR/ATLA = write-off of loans during the year / average total loans and advances

17. **LR** = loan ratio = ATLA/ATA = average total loans and advances / average total assets

18. **LTD** = loans to deposits = ATLA/ATD = average total loans and advances / average total customer deposits

Liquidity ratios

19. **CTA** = cash to assets = C/ATA = cash / average total assets

20. **CTD** = cash to deposits = C/ATD = cash / average total customer deposits

Risk ratios

21. **DTA** = deposits to assets = ATD/ATA = average total customer deposits / average total assets

22. **EM** = equity multiplier = ATA/SE = average total assets / average stockholders' equity

23. **ETD** = equity to deposits = SE/ATD = average shareholders' equity / average customer total deposits

24. **TLE** = total liabilities to equity = TL/SE = average total liabilities / average stockholders' equity

25. **TLSC** = total liabilities to shareholder capital = TL/SC = average total liabilities / shareholder contributed capital

26. **RETA** = retained earnings to total assets = RE/ATA = retained earnings / average total assets

The variable *Crisis* is a dummy variable which is a time condition that take the value of one in time of crisis and zero before the crisis. Thus, we have two axes of comparison: on the one hand IBs vs. CBs, on the other hand the crisis period vs. the pre-crisis period.

There are some differences in calculating certain ratios for the IBs. To explain these differences between IBs and CBs, Turen (1995) suggest that “The risk level of an Islamic bank is the combined effect of the three new statutes governing the operations of the institutions, namely deposit holders are replaced by equity holders, interest
payments to depositors are converted into profit and loss sharing and loans to customers are transformed into capital participation”.

Most variables are defined in the same way for both categories of banks. Nevertheless, Net Income for IBs includes conventional net income before taxes, plus Zakat. Interest income and expenses are replaced by commission income and expenses. Finally, investments in Mudaraba, Murabaha, and Musharaka are essentially equivalent to loans and advances.

In the context of this research, first we will carry out a descriptive analysis to determine the ratios that allow us to a plainer distinction between the two types of banks. Subsequently we will carry out logistic regressions to distinguish between the two types of banks and determine the impact of the recent financial crisis. The results of this research will be detailed in the next section.

3. Results of the research

4.1- Descriptive statistics

Firstly, we distinguish between IBs and CBs based on accounting ratios over the period 2005-2008. Secondly to determine the impact of the current financial crisis on IBs compared to CBs, we distinguish the two types of banks during the two periods: the pre-crisis period and the crisis- period using the time condition variable CRISIS. When comparing the two periods, we found that the significance-effect level of some ratios differs from one period to another.

Table 3 presents the descriptive statistics for both banks types. Each column of the table shows the results of a t-test for equality of means between the Islamic and conventional group of banks for each of the 26 financial ratios respectively in the pre-crisis period, the crisis period and the full period of the study. The test statistic and degrees of freedom are calculated assuming equal, rather than unequal, population variances4. Overall, 19 ratios have means that are statistically different between the two types of banks. 4 ratios are significant at the 10% level whereas 15 ratios are significant at the 5% level. The significance of some ratios differs from one period to another.

\[ t = \frac{(x_1 - x_2)}{\sqrt{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)}} \]

\[ df = \frac{\left(\frac{s_1^2}{n_1}\right)^2 + \left(\frac{s_2^2}{n_2}\right)^2}{\left(\frac{s_1^2}{n_1}\right)^2/(n_1-1) + \left(\frac{s_2^2}{n_2}\right)^2/(n_2-1)} \]

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4 The test statistic (t) is approximately the same as for the simpler case of equal variance where both samples are assumed to come from the same population. Hence, \[ t = \frac{(x_1 - x_2)}{\sqrt{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)}} \] where \( x_1 \) and \( x_2 \) are the means of a financial ratio for CBs (group 1) and for IBs (group 2), s1 and s2 denote standard deviations, and n1 and n2 are the number of observations for each group of banks. Degrees of freedom for the test statistic are adjusted downward and critical values increase as the difference between the variances of the two samples increases. Degrees of freedom (df) are calculated as: \[ df = \frac{\left(\frac{s_1^2}{n_1}\right)^2 + \left(\frac{s_2^2}{n_2}\right)^2}{\left(\frac{s_1^2}{n_1}\right)^2/(n_1-1) + \left(\frac{s_2^2}{n_2}\right)^2/(n_2-1)} \]
Table 3: Descriptive Statistics

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Profitability indicators:

Consistent with the prediction in Hypothesis 1-a, the profitability ratios confirm the work of the previous authors that the IBs are more profitable than the CBs.

In our study, four ratios (ROA, ROE, ROD and NOM) are higher for IBs during the 2005-2008 period. Only the ROSC was smaller for IBs but not significant. The ROA is of 3.6% for IBs versus 2.0% for CBs, but the difference is not significant. ROE averages are 25.11% annually for IBs versus 11.21% for CBs and the difference is significant at the 10% level. Comparing the two periods, we found that during the crisis ROE is larger for the IBs and the difference is significant at the 5% level however during the pre-crisis period the difference was not significant.

The profit margin (PM) is larger for IBs and the difference is significant at the 10.51% level. During the pre-crisis period, the PM was smaller for IBs with 23.12% vs. 32.4% for CBs but the difference was not significant. However, during the crisis IBs became more profitable with 126% vs. (-103%) for CBs and the difference is significant at 8.83% level. This confirms the interest according to the IBs during the recent disaster.

The ROD is larger for the IBs and the difference is significant at the 5% level.

Another profitability-gauge, the net operating margin (NOM), is larger for the IBs relative to the CBs and the difference is significant at the 10% level. During the crisis the difference is significant at the 5% level.

Efficiency indicators:

The operating income to assets (OIA) is significantly larger for IBs at the 10% level. However, Asset turnover (ATO) is significantly smaller for the IBs at the 1% level. Moreover, Interest income to expenses (IIE) is significantly smaller for IBs at the 1% level. The net non interest margin (NNIM) is significantly larger for IBs at the 10% level. The interest margin (NIM) is significantly smaller for IBs at the 5% level. The descriptive statistics for efficiency ratios revealed no differences in terms of significance-effect between the two periods.

Asset-quality indicators:

The asset-quality indicators reveal some additional differences between Islamic and CBs. The APL ratios are significantly smaller at the 5% level for the IBs. CBs maintain higher reserves for loan losses; this is owing to the bad loans called subprime in which CBs were committed. Alternatively, IBs may be operating with greater risk because they maintain smaller contingency reserves for bad loan-like products. The write-off ratio (WRL) is smaller for IBs at the 5% level. The WRL ratio was smaller in the pre-crisis period at the 10% level; however during the crisis
WRL is smaller for the IBs at the 1% level. This result explains the losses supported by the CBs during the crisis.

The loan ratio (LR) and the (LTD) are both larger for IBs respectively at the level of 1% and 5%. IBs give more loans and advances than CBs. This may explain the more profitability of IBs.

**Liquidity indicators:**

The liquidity ratios are significantly different between the two types of banks. IBs, which keep more cash relative to deposits with a 1% significance-effect level and more relative to assets with a 5% significativity level, are more liquid than CBs. This can be accounted for by the absence of last resort-lender for IBs.

**Risk indicators:**

The risk ratios indicate some important differences in the operational characteristics. The (TLE) ratio have the largest t-statistic for any of the ratios (6.1217) and it is smaller for the IBs at the 1% level because IBs extend more equity relative to liabilities. IBs extend more equity relative to deposits (ETD) than the CBs. The difference is significant at the 2.8% level and may suggest greater risk for the IBs. The (RETA) ratio is statistically smaller for the IBs at the 2% level. IBs tend to distribute profits rather than retain them. The RETA suggests that IBs may be less risky than the CBs. The (TLSC) ratio is significantly smaller at the 2.8% level for the IBs, perhaps, because of the greater reliance upon initial shareholder capital in the IBs. This makes the denominator larger and the TLSC ratio smaller for the IBs. By itself, this ratio suggests that IBs are less risky than the CBs.

The equity multiplier (EM) is smaller for Islamic than for CBs and significant at the 2.8% level. Since ROE=ROA×EM, this ratio illustrates that IBs use deposits as a type of leverage to achieve a higher ROE. Smaller equity multipliers suggest a smaller risk, this type of leverage means the risk is also shared with depositors. The risk is reflected in a higher (but not statistically significant) return on deposits (ROD) for the IBs. During the period of crisis EM and TLSC are smaller for IBs but not significant.

**4.2- The Logit model**

To determine the impact of the global financial crisis on IBs compared to CBs, we have used the Stepwise Logit Model. Our problem is to predict the probability that a bank will be classified one as opposed to the other of the two categories of banks. For the 26 possible financial ratios (j=1, 2... 26), the stepwise logit selects the n statistically significant ratios or variables (Vj) that help to distinguish between the two categories of banks. At each observation, the logit probabilities are represented by:
To further explore the relationship between the financial ratios for the two types of banks, we run a logistic regression using the 26 financial ratios for all the 110 observations in the data set. The dependent variable to be predicted is a categorical variable taking on the value of one for an Islamic bank and zero for a conventional bank. Some of the 26 variables are not significant in distinguishing between the two types of banks, and some combinations of the variables are highly correlated with one another.

Recognizing and adjusting for possible problems with the multicollinearity of the variables, Stepwise logit is used to form a parsimonious predictive model that shows the probability ($P_i$) from zero to one that a given bank ($i=1, 2…110$) is Islamic rather than conventional.

Variables are added to the logistic regression equation one at a time, using the statistical criterion of reducing the $-2 \text{ Log Likelihood}$ errors for the included variables. After each variable is entered, each of the included variables is tested to see if the model would be better when the variables were excluded. The process of adding more variables stops when all the available variables have been included or when it is not possible to make a statistically-significant reduction in $-2 \text{ Log Likelihood}$ using any of the variables being not yet included. The criterion that best explains the choice of the variables is the Wald ($z$-statistics). The higher the value of Wald, the more significant is the variable and it explains well the dependent variable.

Forward and backward elimination and comparison of the results from an exhaustive search eventually led to following four-variable explanatory model:

$$\log \left[ \frac{P_i}{1-P_i} \right] = \alpha + \sum_{j=1}^{n} \beta_j V_j + \epsilon_i$$

$\alpha$: the constant term.
$\beta_j$: the slope coefficients in the estimated logit model.
$\epsilon_i$: error term

For example, since net interest income plus net non-interest income equals net income, only one of the almost perfectly collinear variables (NIM or NNIM) can be included in any single logit regression model. Similarly, the operating-income portion of PM, OIA, and OER creates problems when all three variables are included in any single model.
Bank = 29.36 + 12.56 ROE - 298.45 IIE - 229.995 APL - 1.27 EM + e (1)

(5.79) (1.86) (-3.66) (-2.19) (-2.81)

No variables in this model are more than 6.57% correlated with one another.

The z-statistics are shown in parentheses below their respective coefficients, subscripts for individual banks (i) are omitted, and e is the error term for the regression. The model is very significant with a chi2 probability = 0.000. All coefficients in this four-variable model have the expected sign.

The increase of the Return on Equity (ROE) for one unit increases the probability that the bank is Islamic rather than conventional for the 12.5 units. The positive coefficient for ROE confirms the expectations in Hypothesis 1-a that IBs are more profitable than CBs and therefore, reward shareholders with higher returns than CBs.

The increase of the Interest Income to Expenses (IIE) for one unit decreases the probability that the bank is Islamic rather than conventional for the 298.5 units. The negative coefficient (-298.5) for IIE confirms that the interest income to the expenses are higher for the CBs—supporting Hypothesis 1-b that IBs are less efficient than CBs because the IBs have no interest income and operate without usury-practice. The lack of efficiency for IBs can be interpreted as the cost of risk supported by these institutions. Based on the fact that efficiency is to achieve the objective with the least cost, we can explain the lack of efficiency for the IBs by incremental costs incurred by the Islamic bank which forbids receiving a fixed interest and choice to share the risk with their clients.

The increase of the Adequacy of Provisions for Loans (APL) for one unit decreases the probability that the bank is Islamic rather than conventional for the 230 units. The negative sign for APL (-230) reflects the smaller reserves for loan losses in the IBs. Lower reserves may reflect lower-default probabilities for Islamic products. However this ratio reflects larger reserves for bad loans in the CBs. This result explain well the context of the crisis in which CBs were committed in the bad subprime-loans. So these institutions must detain more reserves to support the high risk of insolvability.

The increase of the Equity Multiplier (EM) ratio for one unit decreases the probability that the bank is Islamic rather than conventional for the 1.27 units. The negative sign for EM (-1.27) which is a risk ratio suggests that the IBs are less risky than the CBs.
because of their reliance on shareholder capital. These results confirm the Hypothesis 1-c that IBs are less risky.

Our findings confirm our prediction Hypothesis 1—that the financial ratios can be used to distinguish between the Islamic and CBs in the international context.

To determine the impact of the current crisis on the IBs compared to the CBs, we have introduced the time condition variable CRISIS which takes the value of one if it is crisis’ period and zero if not. In fact, our period is split into two different contexts, during the two first years (2005 and 2006) there were no specific circumstances; however during the last two years (2007 and 2008), it was a context of turbulences for all the economy and the banking industry was very affected. Thus the discriminators ratios between the two types of banks should be different from one period to another.

To further explore the relationship between the accounting ratios of the two types of banks in the context of the current financial crisis, we make adjustments and reorganizations rather the possible as in model (1). It has led to the following model (2):

\[
\text{Bank} = 14.223 + 12.91 \text{ROE} - 260.893 \text{IEE} + 17.126 \text{LR} - 2.27 \text{TLE} + \epsilon \quad (2)
\]

(1.95) (1.74) (-2.84) (1.66) (-4.21)

Model (2) is the best explanatory model during the crisis period. No variables in this model are more than 28% correlated with one another.

If we compare the two models, we find that the profitability indicator (ROE) is a good discriminator between the two types of banks in model (1) as in model (2). Nonetheless, we note the increase of the positive coefficient of ROE during the crisis period (12.91 in model (2) vs. 12.5 in model (1)). IBs are more profitable during the crisis period. Moreover, the efficiency indicator of IIE is a good discriminator between the two types of banks. The negative coefficient of IIE shows that the IBs are less efficient than the CBs. However, we note the increase of the coefficient of this ratio during the crisis period (-261 in model (2) vs. -298 in model (1)). The efficiency level of the IBs is higher during the 2007-2008 period.

The asset-quality indicator (LR) ratio which is the total loans and advances divided by total assets is a good discriminator between the two types of banks during the
crisis. The positive coefficient of LR ratio (+17.126) shows that during the crisis, the increase of LR for one unit increases the probability that the bank is Islamic rather than conventional for the 17.126 units. This result shows the big interest according to the IBs in the context of the current crisis faced to the confidence crisis in the conventional banking system. Infact, the subprime crisis has revealed many flaws in the conventional system and many people whether they are Muslims or non-Muslims are interested in Islamic banking products and denounce the conventional banking products, which clearly explain the increase in loans and advances for IBs.

The risk indicator (TLE) which is the total liabilities divided by the stockholders equity is a good discriminator between the two types of banks during the crisis. The increase of TLE for one unit decreases the probability that the bank is Islamic rather than conventional for the 2.271 units. The negative coefficient (-2.27) of this ratio means that IBs are less risky during the crisis and this ratio increases when the bank is not Islamic.

If we compare the coefficients of risk indicators in the two models, we can note that the negative coefficient of the risk discriminator (EM) in model (1) is higher than this of the risk discriminator (TLE) in model (2) (-1.27 vs. -2.27). We can conclude that IBs are less risky during the crisis 2007-2008. In fact IBs detain more equity than CBs. Moreover, during the crisis, the liabilities of CBs have increased due to the insolvency of the subprime credits.

Our findings confirm the Hypothesis 2 that the IBs are less affected by the recent crisis. It does not mean that IBs are not at all affected by the financial crisis, however it explain, as pointed out by different calls of experts and economists that the IBs are less susceptible to the financial crisis. In fact, the very nature of the Islamic baking’s prohibition of dealing in derivative and speculative assets have served to protect IBs from the adverse effects of the economic crisis.

3. Conclusion and Policy

The aim of our research was to determine the impact of the current global financial crisis on IBs compared to CBs based on accounting ratios. Since the IBs operate under different principles, we must firstly resolve the issue whether we can use accounting ratios to distinguish between the two types of banks in the international context. Our empirical results indicate that the measures of bank characteristics such
as the profitability ratios, the efficiency ratios, the asset-quality indicators, as well as the risk ratios are good discriminators between the Islamic and the CBs, in the international context.

As widely evident, the IBs have been immunized against the 2007-2008 crisis thanks to the prudent policies of the Islamic banking. In fact the pillars of Islamic finance have served to maintain the stability of the Islamic banking system and protect it from any financial imbalance.

First, the prohibition of charging any interest allowed the avoidance of any artificial creation of money. Second, the PLS principle creates an interest -convergence between the bank and the depositors on the one hand and the bank and investors on the other hand. Under the PLS system, the relationship between the creditor and the debtor is harmonized since both have a vested interest in the welfare and soundness of the investment project due to the fact that the profit's share of each is directly related to the project success. Therefore, banks will be more careful when choosing which deal to finance. Another guiding principle of Islamic banking concerns the moral and the social values. In Islam, we must care for and support the poor. However, the origin of the current crisis is the fact that banks have set to poor households a high interest level.

During the recent disaster, the Islamic economic system constitutes for many economists and researchers the best alternative to the current capitalistic system due to its stability which managed to cope with the financial crisis. However, there are many challenges facing its development to respond to the international demand of Islamic banking products without any dispensation to Shariaa principles.

The limitations of our study include the following. This study was based only on accounting ratios, so we did not include market-related variables in distinguishing between the Islamic and CBs. Although this study considered four years of data, the analysis -time period is still relatively short. So, future research can include market-related variables to distinguish between the two types of banks and take a longer period to determine the impact of the current crisis because it still continues to produce its effects. Moreover, researchers must focus on the challenges facing the internationalization of the Islamic banking system.
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APPENDIX

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<tr>
<th>List of banks</th>
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<tr>
<td><strong>IBs</strong></td>
<td><strong>CBs</strong></td>
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<tr>
<td>Abudhabi Islamic bank</td>
<td>ABN Amro</td>
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<tr>
<td>Albaraka Islamic Bank Group</td>
<td>Addax bank Bahrain</td>
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<tr>
<td>Aljazeera Islamic bank</td>
<td>Arab International Bank</td>
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<tr>
<td>Alrajhi Islamic bank</td>
<td>Bank of America</td>
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<tr>
<td>Dubai Islamic bank</td>
<td>Bank of New York</td>
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<tr>
<td>Emirates Islamic bank</td>
<td>Bank Meryll Lunch</td>
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<tr>
<td>International Islamic investment bank Bahrain</td>
<td>Chase Bank New York</td>
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<td>Islamic Bank Britain</td>
<td>Gold man Bank</td>
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<td>Islamic bank Nour</td>
<td>Med Bank</td>
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<tr>
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<td>Meta Bank</td>
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<td>Wellsfargo bank</td>
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<tr>
<td>Unicorn Investment bank</td>
<td>Standart Bank</td>
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