"Effects of the current financial crisis on Islamic banks compared to conventional banks"

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Effects of the current financial crisis on Islamic banks compared to conventional banks

Abstract

The aim of this study is to determine the impact of the current global financial crisis on Islamic banks compared to conventional ones based on accounting ratios. Islamic banks have their own characteristics and operate under different principles.

Firstly, the authors 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 actual context of crisis. In over 110 bank-years observations, the authors found that accounting ratios are good discriminators between Islamic and conventional banks in the international context.

Secondly, the paper determines the impact of the financial crisis on Islamic banks compared to conventional ones. This work introduces a new variable *CRISIS* which is a time condition that makes a distinction between the crisis period and the pre-crisis period.

The main empirical results show that Islamic banks are more stable than conventional banks during the crisis 2007-2008 because of the requirements of *Sharia law*.

Keywords: financial crisis, Islamic banks, accounting ratios.
JEL Classification: F42, G01, G21, G42.

Introduction

The current financial crisis is commonly viewed as the worst financial crisis since the Great Depression of the 1930s. This disaster has led many economists as well as intellectuals and other social critics to reconsider the merits of the current Capitalistic Economic System.

In fact the crisis has seized up money markets and led to a precipitous decline in property and stock values, bank failures and nervous anxiety about the fate of the global economy and the current financial system (Shapra, 2008).

In this climate of uncertainty, a number of experts and officials of Islamic banks and financial institutions have confirmed that Islamic banks have not been affected by the global financial crisis. They also believe that, because of the nature of Islamic banking system, any effects the crises might have, will be limited.

A review of literature shows the existence of a number of researchers that have highlighted the causes of the credit crisis as a lack of proper regulation, legislation and transparency (Cecchetti, 2008b; Riaz, 2009, etc.). Furthermore, this credit crunch has also highlighted the fragility of capitalism and the free-market economy. On the other hand, a number of Islamic economists (Siddiqui, 2009; Chapra, 2009; Shahid, 2009) continually refer to the global economic crisis as being the result of interest rates (*Riba*) from the great depression to the current crisis in the western countries. But most of this research is subjective and there is a shortage of empirical research that determines the impact of the global financial crisis on Islamic banks compared to conventional ones.

The aim of this paper is to determine the impact of the global crisis on Islamic banks compared to conventional ones based on a bank's financial characteristics. For this purpose we have collected 110 samples (51 Islamic and 59 conventional) for banks operating in different countries around the world during the period of 2005-2008. Based only on accounting ratios for both types of banks, the stepwise logit model shows that we can use accounting ratios to distinguish between Islamic banks and conventional ones in an international context.

To determine the impact of the global crisis on Islamic banks compared to conventional ones, we introduce the dummy variable *CRISIS* which is a time condition that makes a distinction between the two periods: the period before the crisis and the period during the crisis. By determining the best explanatory model that allows us to classify the bank as Islamic rather than conventional in the period of the crisis compared to the full period, we can show well that Islamic banks are more resistant to the current disaster compared to conventional ones.

1. Review of the literature and hypotheses

A review of previous research shows the existence of an important section of literature that focuses on the conventional banking industry and banking crisis. While, another section explains general Islamic financial principles. Moreover, there is a substantial amount of research that compares Islamic banking to conventional banking. Some of this research used financial ratios (Karim and Ali, 1989; Abdul Samad and Kabir, 1999; Rosly and Abu Baker, 2003; and Olson and Zoubi, 2008).

Rosly and Abu Baker (2003) examined six financial ratios for Islamic and mainstream banks in Malaysia for the years of 1996-1999. They found that the operat-

ing efficiency ratios and the use of assets are statistically lower for Islamic banks than for conventional banks.

Yudistira (2003) used data envelopment analysis to show that 18 Islamic banks are less cost efficient than conventional banks. The lack of efficiency may be due to the recent age of Islamic banks, or it can be explained by the fact that customers of Islamic banks are prone to Islamic products regardless of cost. The hypothesis is stated as:

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

With the big international interest shown in Islamic banking in the context of the current financial crisis, it will be important to test this question out of the GCC region. Our testable propositions are:

H1: Financial ratios can be used to distinguish between Islamic and conventional banks in the international context.

In the context of the current financial crisis, an important school of thought is now developing to address the causes of the crisis, the threats to economic well-being, and opportunities that may exist as a result of the crisis (Peter, 2009; Eliot et al., 2009).

While, another school of thought submits the Islamic financial system as a solution for the current financial crisis and an alternative for the actual system (Shapra, 2008; Megha, 2008; Shahid, 2009). But most part of this research is subjective and there is a lack of empirical research that determines the impact of the current financial crisis on Islamic banks compared to the conventional ones.

The hypothesis can be stated as:

H2: Islamic banks are unaffected by the current financial crisis.

Our predictions are as follows:

H2a: Islamic banks are more profitable than conventional ones during the current financial crisis.

H2b: Islamic banks are more efficient than conventional ones during the current financial crisis.

H2c: Islamic banks are less risky than conventional ones during the current financial crisis.

2. Methodology of the research

As we stated earlier, the objective of this research is to distinguish between Islamic banks and conventional banks in the context of the current crisis based on accounting ratios to determine the impact of this disaster on Islamic banks compared to conventional ones.

2.1. Data and sample. Our sample is split into two groups of banks, Islamic banks and conventional ones. Whenever possible, we downloaded annual reports from the websites of each bank. These annual reports contained the income statement, statement of change in stockholders' equity, balance sheet, statement of cash flows, and the notes to the financial statements.

As shown in Table 2 (see Appendix), we have collected 110 samples, or bank-years of data, for international banks operating in many countries around the world for the calendar years of 2005-2008. 10 annual reports of which 4 prior to 2005, 2 prior to 2006, 2 prior to 2007 and 2 prior to 2008 were not readily available electronically.

There are 59 observations for conventional banks and 51 observations for Islamic banks. 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.

We have tried to diversify our sample and make it representative to reflect the impact of a global financial crisis of the present kind. In fact, we have selected a number of international Islamic and conventional banks from different regions in the world. However, the data set excludes multinational banks (e.g., HSBC, Citicorp, and BNP Paris-bas) that have Islamic windows.

Conventional banks have adopted the financial accounting rules established by the International Accounting Standards Board while Islamic banks use the financial accounting rules established by The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI). Those accounting standards are derived from the faith of Islam. There are some differences between AAOIFI standards and IAS standards, such as the more stringent disclosure requirements imposed on conventional banks and 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 conventional and Islamic banks. Moreover, comparing data across the world should not cause any particular problems.

2.2. Variables of research. In our research we have used on the one hand *twenty-six accounting ratios* and on the other hand the variable '*CRISIS*'.

26 financial ratios used in this study are defined in Table 3 (see Appendix). They fall into five general categories: profitability, efficiency, asset quality, liquidity, and risk. Olson and Zoubi (2008) have taken these 26 accountings ratios but their research have been limited to the GCC region; whereas our sample is international including banks operating in different countries around the world.

The variable *CRISIS* is a *dummy variable* which take the value of one in time of crisis and zero before the crisis. This variable is a *time condition* variable that allows us to determine the impact of the global crisis on Islamic banks compared to conventional ones. Thus, we have two axis of comparison: on the one hand Islamic banks vs. conventional banks, on the other hand the crisis period vs. the pre-crisis period.

There are some differences in calculating certain ratios for Islamic banks. To explain these differences between Islamic banks and conventional banks, 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. However, net income for Islamic banks includes conventional net income before taxes, plus Zakat, which is a tax on idle wealth. 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 draw a descriptive analysis to determine the ratios that allow us to distinguish more 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 current crisis.

The results of this research will be detailed in the next section.

3. Results of the research

3.1. Descriptive statistics. Firstly, we are interested to distinguish between Islamic banks and conventional banks based on accounting ratios over the period of 2005-2008. Secondly, to determine the impact of the current financial crisis on Islamic banks compared to conventional ones 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 level of some ratios differ from one period to another.

Tables 4, 5, 6, 7 and 8 (see Appendix) presents descriptive statistics for both types of banks respectively for profitability ratios, efficiency ratios, asset quality indicators ratios, liquidity ratios and risk ratios. The last column of each table shows the results of a t-test for equality of means between the Islamic and conventional group of banks for each of 26 financial ratios. The test statistic and degrees of freedom are calculated assuming equal, rather than unequal, population variances. Overall, 19 ratios have means that are statistically different between the two types of banks. 4 ratios are significant at the 10% level, and 15 ratios are significant at the 5% level. The significance of some ratios differs from the two periods.

3.1.1. Profitability indicators. As shown in Table 2, four ratios (*ROA*, *ROE*, *ROD* and *NOM*) are higher for Islamic banks during the period of 2005-2008. Only the *ROSC* was smaller for Islamic banks but not significant. The *ROA* is of 3.6% for Islamic banks versus 2.0% for conventional banks but the difference is not significant. *ROE* (which is the net income divided by the average total assets) averages are 25.11% annually for Islamic banks versus 11.21% for conventional banks and the difference is significant at the 10% level.

The *ROD* is larger for Islamic banks and the difference is significant at the 5% level. Another measure of profitability, the net operating margin (*NOM*), is larger for Islamic banks relative to conventional banks and the difference is significant at the 10% level. During the crisis the difference is significant at the 5% level.

Profitability ratios shows that Islamic banks are more profitable than conventional ones but the difference is not significant. However, during the current crisis, Islamic banks are more profitable and the difference is significant.

3.1.2. Efficiency indicators. Operating income to assets (*OIA*) which is operating income divided by average total assets is significantly larger for Islamic banks at the 10% level. However, asset turnover (*ATO*), which is interest or commission income divided by average total assets, is significantly smaller for Islamic banks at the 1% level. Moreover, interest income to expenses (*IIE*) which is net interest income divided by average total loans and advances is significantly smaller for Islamic banks at the 1% level. The net non-interest margin (*NNIM*) is significantly larger for Islamic banks at the 10% level. The interest margin (*NIM*) is significantly smaller for Islamic banks at the 5% level.

3.1.3. Asset-quality indicators. As shown in Table 6, the asset-quality indicators reveal some additional differences between Islamic and conventional banks. The *APL* (allowance for loan loss divided by total

loans) ratios are significantly smaller at the 5% level for Islamic banks. Conventional banks maintain higher reserves for loan losses, this is because the bad loans called subprime in which conventional banks were committed. Alternatively, Islamic banks may be operating with greater risk because they maintain smaller contingency reserves for bad loan-like products. The write-off ratio (*WRL*) (which is the write-off of loans during the year divided by the average total loans and advances) is smaller for Islamic banks at the 5% level. The *WRL* ratio was smaller in the defined period at the 10% level; however during the crisis *WRL* is smaller for Islamic banks at the 1% level. This result explains losses supported by conventional banks during the crisis.

3.1.4. Liquidity indicators. As shown in Table 7, the liquidity ratios are significantly different between the two types of banks. Islamic banks, which keep more cash relative to deposits with a 1% significance level and more relative to assets with a 5% significance level, are more liquid than conventional ones. This may explain the absence of lenders as a last resort for Islamic banks.

3.1.5. Risk indicators. As shown in Table 8, the risk ratios indicate some important differences in operational characteristics. The total liability to equity ratio (*TLE*) has the largest t-statistic for any of the ratios (6.1217) and is smaller for Islamic banks at the 1% level because Islamic banks extend more equity relative to liabilities. Islamic banks extend more equity relative to deposits (*ETD*) than conventional banks. The difference is significant at the 2.8% level and may suggest greater risk for Islamic banks. The retained earnings to total assets ratio (*RETA*) is statistically smaller for Islamic banks at the 2% level. Islamic banks tend to distribute profits rather than retain them.

The *RETA* suggests that Islamic banks may be less risky than conventional banks. Total liabilities to shareholder capital (*TLSC*) are significantly smaller at the 2.8% level for Islamic banks – perhaps because of the greater reliance upon initial shareholder capital in Islamic banks. This makes the denominator larger and the *TLSC* ratio smaller for Islamic banks. By itself, this ratio suggests that Islamic banks are less risky than conventional banks.

The equity multiplier (*EM*) is smaller for Islamic than for conventional banks and significant at the 2.8% level. Since $ROE = ROA \times EM$, this ratio illustrates that Islamic banks use deposits as a type of leverage to achieve a higher *ROE*. Smaller equity multipliers suggest 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 Islamic

banks. During the period of crisis *EM* and *TLSC* are smaller for Islamic banks but not significant.

3.2. Logit model. To determine the impact of the global financial crisis on Islamic banks to conventional ones, we have used the *stepwise logit model*.

Our problem is to predict the probability that a bank will be classified as one, as opposed to the other of the two categories of banks. Stepwise regression lets us develop an optimal equation for predicting a dependent variable from several independent variables.

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 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 26 variables are not significant in distinguishing between two types of banks, and some combinations of variables are highly correlated with one another.

Multicollinearity was deemed to be a problem because:

♦ Including an unnecessary regressor, which is correlated with the others, reduces the efficiency of estimation of the coefficients on the other included repressors.

♦ Omitting a regressor which has an impact on the dependent variable and is correlated with the included repressors leads to "omitted variable bias".

♦ Including a regressor which has no impact on the dependent variable and is correlated with the included regressors leads to a reduction in the efficiency of estimation of the variables included in the regression.

Recognizing and adjusting for possible problems with multicollinearity of 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 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 if the variables were excluded. The process of adding more variables stops when all of the available variables have been included or when it is not possible to make a statistically significant reduction in *-2 log likelihood* using any of the variables not yet included.

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

$$Bank = 29.36 + 12.56\ ROE - 298.45\ IIE - 229.995\ APL - 1.27\ EM + \varepsilon t \ . \tag{1}$$

$$(5.\ 79) \qquad (1.86) \qquad (-3.66) \qquad (-2.19) \qquad (-2.81)$$

No variables in this model are more than 6.57% correlated with one another. To ask what the criterion that best explains the choice of variables, just we look for the variable that has the highest Wald statistic (z-statistics). The higher the value of Wald increases, the variable is significant and it explains well the dependent variable.

The z-statistics are shown in parentheses below their respective coefficients, subscripts for individual banks (1) are omitted, and e is the error term for the regression. The model is very significant with *a Chi square 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 12.5 units. The positive coefficient for *ROE* confirms expectations that Islamic banks are more profitable than conventional banks and therefore, reward shareholders with higher returns than conventional banks.

The increase of the interest income to expenses (*IIE*) for one unit decreases the probability that the bank is Islamic rather than conventional for 298.5 units. The negative coefficient (-298.5) for *IIE* confirms that interest income to expenses are higher for conventional banks – supporting that Islamic banks are less efficient than conventional banks because Islamic banks have no interest income and operate without the practice of usury.

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 230 units. The negative sign for *APL* (-230) reflects the smaller reserves for loan losses in Islamic banks. Lower reserves may reflect lower probabilities of default for Islamic products. However this ratio reflects larger reserves for bad loans in conventional banks. This result explains well the context of the crisis in which conventional banks were committed in the bad loans subprime. So these institutions must detain more reserves to support the high risk of insolvency.

Our findings confirm our prediction H1, that financial ratios can be used to distinguish between Islamic and conventional banks in the international context.

To determine the impact of the current crisis on Islamic banks compared to conventional ones, we have introduced the *dummy* variable *CRISIS* which takes the value of one if it is crisis period and zero if not. In fact, our period is divided into two different periods, the two first years (2005 and 2006) there were no specific circumstances however during the last two years (2007 and 2008), it was a period of turbulence for the economy and the banking industry was badly affected during this period. 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:

$$Bank = 14.223 + 12.91\ ROE - 260.893\ IEE + 17.126\ LR - 2.27\ TLE + \varepsilon t \ . \tag{2}$$

$$(1.95) \qquad (1.74) \qquad (-2.84) \qquad (1.66) \qquad (-4.21)$$

Model (2) is the best explanatory model during the period of 2007-2008. No variables in this model are more than 28% correlated with one another.

To analyze the impact of the crisis of 2007-2008 on Islamic banks compared to conventional ones, we make comparisons between model (1) and model (2).

The indicator of profitability *ROE* is a good discriminator between the two types of banks in model (1) as in model (2). However, 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)). This result confirms our predictions in H2a that Islamic banks are more profitable during the crisis.

The indicator of efficiency *IIE* is a good discriminator between the two types of banks. The negative coefficient of *IIE* shows that Islamic banks are less

efficient than conventional ones. 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 Islamic banks is higher during the period of 2007-2008. This result confirms our predictions in H2b that Islamic banks are more efficient during the crisis.

The asset quality indicator (*LR*) ratio which is total loans and advances divided by total assets is a good discriminator between 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 17.126 units. This result show the big interest according to Islamic banks in the context of the current crisis faced to a confidence crisis in the conventional banking sys-

tem. The subprime crisis has revealed many failures in the conventional system and many people Muslims and non-Muslims are interested in Islamic banking products and denounce conventional banking products, which clearly explain the increase in loans and advances for Islamic banks.

The risk indicator (*TLE*) ratio which is total liabilities divided by 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 2.271 units. The negative coefficient (-2.27) of this ratio means that Islamic banks are less risky during the crisis. This ratio is increasing if the bank is not Islamic. However, we note well the increase of liabilities for conventional banks during the current crisis. Thus, this ratio reflects a higher risk for conventional banks.

If we compare 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 Islamic banks are less risky during the crisis of 2007-2008. This result confirms our prediction in H2c that Islamic banks are less risky during the crisis period.

In fact Islamic banks retain more equity than conventional banks. Moreover, during the crisis, the liabilities of conventional banks have increased due to the insolvency of the subprime credits.

Our findings confirm H2, that Islamic banks are unaffected by the current crisis. This result is coherent with different calls of experts and economists that Islamic banks are unaffected by the current crisis and immune to this disaster due to conformity to *Sharia* (Islamic law). In fact, the very nature of Islamic banking prohibition of dealing in derivative and speculative assets has served to protect Islamic banks from the adverse effects of the economic crisis.

Conclusion and policy

The aim of our research was to determine the impact of the current global financial crisis on Islamic banks compared to conventional ones based on accounting ratios. Since Islamic banks operate under different principles, we must firstly resolve the question whether we can use accounting ratios to distinguish between the two types of banks in the international context.

Our empirical results indicate that measures of bank characteristics such as profitability ratios, efficiency ratios, asset-quality indicators, and risk ratios are good discriminators between Islamic and conventional banks, in the international context.

Based on financial characteristics on the one hand and the time condition variable *CRISIS* on the other hand, we have determined the impact of the current crisis on Islamic banks compared to conventional ones.

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

First, the interdiction of charging any interest (*Riba*) serves to avoid any artificial creation of money.

Second, the PLS principle creates an interest convergence between the bank and 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. So banks will be more careful when choosing which deal to finance.

Another guiding principle of Islamic banking concerns moral and 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 supported to poor households at a high interest level.

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 Islamic and conventional banks. Another limit, common to most prediction studies, is that the selection of the variables was not based on any economic theory. Although this study considered four years of data, the time period of analysis 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 have effects. Moreover, researchers must focus on challenges facing the internationalization of the Islamic banking system.

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Appendix

1. Islamic financial products

Murabaha. It is a purchase and resale contract in which a *tangible asset* is purchased by a bank at the request of its customer from a supplier, with the resale price determined based on cost plus profit markup.

Salam. It is a purchase contract with deferred delivery of goods, which is mostly used in agricultural finance.

Istisna. A contract which a party requests another to produce an object at a cash, over time or term. It becomes an obligation of the manufacturer or the builder to deliver the asset of agreed specifications at the agreed period of time.

Ijara. A leasing contract whereby a party leases an asset for a specified rent and term.

Ijara wa iktina. A contract resembles Ijara, except that the client is committed to purchase the equipment at the end of the rental period.

Mudaraba. A trustee-type finance contract under which party Islamic bank (*rabb-al-mal*) provides the *capital* for a project and the client (*mudarib*) provides the *labor*. *Profit sharing* is agreed between the two parties to the *Mudaraba* contract and the *losses* are borne by the *provider of funds* except in the case of misconduct, negligence, or violation of the conditions agreed upon by the bank.

Musharaka. Is an equity participation contract under which a bank and its clients (two or more partners) contribute jointly to finance a project and the ownership (profits and losses).

Sukuk. Islamic bonds are shifting the risks from the bank side as in the case of traditional bonds to be on a shared basis between the bank and the investors. The primary condition of issuance of *Sukuk* is the existence of assets on the balance sheet of the bank.

Table 1. Lists of banks

Islamic banks	Conventional banks
Abudhabi Islamic Bank	ABN AMRO
Albaraka Islamic Bank	Britain Addax Bank
Aljazeera Islamic Bank	Arab International Bank
Alrajhi Islamic Bank	Bank of America
Dubai Islamic Bank	Bank of New York
Emirates Islamic Bank	Bank Meryll Lunch
International Islamic Investment Bank in Bahrain	Chase Bank New York
Britain Islamic Bank	Goldman Bank
Nour Islamic Bank	Med Bank
Palestine Islamic Bank	UBS Bank
Quwait International Islamic Bank	Jordan Arab Invstment Bank

Table 1 (cont.). Lists of banks

Islamic banks	Conventional banks
Salam Islamic Bank	PNC Bank
Shamil Islamic Bank	Meta Bank
Sharjah Islamic Bank	Wellsfargo Bank
Unicorn Investment Bank	Standart Bank

Table 2. Sample partition by bank type

	2005	2006	2007	2008	Total
Islamic banks	11	13	13	14	51
Conventional banks	15	15	15	14	59
Total	26	28	28	28	110

Table 3. Accounting ratios

Bank profitability ratios	
ROA (return on assets)	$= NI/ATA$ = net income / average total assets
ROE (return on equity)	$= NI/SE$ = net income / average stockholders' equity
PM (profit margin)	$= NI/OI$ = net income / operating income
ROD (return on deposits)	$= NI/ATD$ = net income / average total customer deposits
ROSC (return on shareholder capital)	$= NI/SC$ = net income / shareholder contributed capital
NOM (net operating margin)	$= OI/IN$ = operating profit or income / interest income
Bank efficiency ratios	
IIE (interest income to expenses)	$= (IN−IE)/ATLA$ = (interest income−interest expenses) / average total loans and advances
OEA (operating expense to assets)	$= OE/ATA$ = operating expenses / average total assets
OIA (operating income to assets)	$= OI/ATA$ = operating income / average total assets
OER (operating expenses to revenue)	$= OE/OI$ = operating expenses / operating income
ATO (asset turnover)	$= IN/ATA$ = interest income / average total assets
NIM (net interest margin)	$= (IN−IE)/ATA$ = (interest income − interest expenses) / average total assets
NNIM (net non-interest margin)	$= (NIN−NIE)/ATA$ = (non-interest income − non-interest expenses) / average total assets
Asset-quality indicators	
PEA (provision to earning assets)	$= PLL/ATLA$ = provision for loan losses / average total loans and advances
APL (adequacy of provision for loans)	$= ALL/ATLA$ = allowance for loan losses at the end of the year / average total loans and advances
WRL (write-off ratio)	$= WR/ATLA$ = write-off of loans during the year / average total loans and advances
LR (loan ratio)	$= ATLA/ATA$ = average total loans and advances / average total assets
LTD (loans to deposits)	$= ATLA/ATD$ = average total loans and advances / average total customer deposits
Liquidity ratios	
CTA (cash to assets)	$= C/ATA$ = cash / average total assets
CTD (cash to deposits)	$= C/ATD$ = cash / average total customer deposits
Risk ratios	
DTA (deposits to assets)	$= ATD/ATA$ = average total customer deposits / average total assets
EM (equity multiplier)	$= ATA/SE$ = average total assets / average stock holders' equity
ETD (equity to deposits)	$= SE/ATD$ = average shareholders' equity / average customer total deposits
TLE (total liabilities to equity)	$= TL/SE$ = average total liabilities / average stockholders' equity
TLSC (total liabilities to shareholder capital)	$= TL/SC$ = average total liabilities / shareholder contributed capital
RETA (retained earnings to total assets)	$= RE/ATA$ = retained earnings / average total assets

Table 4. Descriptive statistics for profitability ratios

Variable	N		Mean		Standard deviation		t-test for equality of means	
	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	t-value	p-value
The full period of 2005-2008								
ROA	59	51	.0207699	.0363678	.0519271	.082986	-1.1981	0.2335
ROE	59	51	.1121105	.2511784	.1510806	.6211305	-1.6648[a]	0.0988
PM	59	51	-.3424611	.7781899	3.603909	3.565102	-1.6345	0.1051
ROD	58	47	.0456653	.34213	.1445644	1.08874	-2.0538[b]	0.0425
ROSC	59	51	5.040522	.2461459	20.91497	.7351731	1.6351	0.1049
NOM	59	34	6.890246	34.01658	43.89763	101.7438	-1.7849[a]	0.0776

Table 4 (cont.). Descriptive statistics for profitability ratios

Variable	N		Mean		Standard deviation		t-test for equality of means	
	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	t-value	p-value
The pre-crisis period of 2005-2006								
ROA	30	24	.0293023	.053662	.0643059	.070539	-1.3249	0.1910
ROE	30	24	.1786146	.3725221	.1147637	.8499184	-1.2385	0.2211
PM	30	24	.3245705	.2312623	.3084236	1.016854	0.4769	0.6354
ROD	29	22	.0558207	.2333442	.1415126	.6157472	-1.5055	0.1386
ROSC	30	24	9.601764	.2814923	28.52022	.7702178	1.5974	0.1162
NOM	30	15	12.49607	53.84864	61.53701	149.7986	-1.3169	0.1948
The crisis period of 2007-2008								
ROA	29	27	.0119432	.0209952	.0338205	.0912167	-0.4991	0.6197
ROE	29	27	.0433131	.1433173	.1549167	.2779281	-1.6785[a]	0.0990
PM	29	27	-1.032494	1.264348	5.082879	4.796454	-1.7361[a]	0.0883
ROD	29	25	.0355099	.4378616	.1493475	1.385562	-1.5557	0.1258
ROSC	29	27	.3219949	.214727	4.279486	.7158353	0.1285	0.8982
NOM	29	19	1.091119	18.3597	1.048532	30.63898	-3.0499[b]	0.0038

Notes: [a, b] the authors' calculations.

Table 5. Descriptive statistics for efficiency ratios

Variable	N		Mean		Standard deviation		t-test for equality of means	
	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	t-value	p-value
The full period of 2005-2008								
IIE	59	51	.0568477	.0159167	.0654965	.019222	4.3032[b]	0.0000
OEA	59	51	.0455243	.053542	.0386886	.0687674	-0.7665	0.4451
OIA	59	51	.0663341	.0964141	.0863596	.0840749	-1.8441[a]	0.0679
OER	59	51	1.138056	.1463225	6.057627	3.558204	1.0258	0.3073
ATO	59	51	.0480818	.0101978	.0373921	.0158824	6.7266[b]	0.0000
NIM	59	51	.0215186	.0082903	.0382377	.0091822	2.4098[b]	0.0176
NNIM	59	51	-.0136848	.0272079	.1278968	.0816385	-1.9631[a]	0.0522
The pre-crisis period of 2005-2006								
IIE	30	24	.0590473	.0163718	.0649992	.0212059	3.0828[b]	0.0033
OEA	30	24	.0506143	.0494665	.0451554	.0528974	0.0860	0.9318
OIA	30	24	.0810972	.1101798	.1054815	.0928027	-1.0612	0.2935
OER	30	24	.9311544	.6815787	1.406059	1.038816	0.7250	0.4717
ATO	30	24	.0491408	.0107023	.0368312	.0174748	4.7006[b]	0.0000
NIM	30	24	.0218941	.0086668	.037177	.0101095	1.6908[a]	0.0969
NNIM	30	24	-.0208076	.0434561	.1802858	.0690718	-1.6495	0.1051
The crisis period of 2007-2008								
IIE	29	27	.0545723	.0155121	.0670796	.0176745	2.9308[b]	0.0049
OEA	29	27	.0402588	.0571646	.0305324	.0811783	-1.0454	0.3005
OIA	29	27	.0510619	.0841779	.0587354	.0751295	-1.8446[a]	0.0706
OER	29	27	1.352093	-.3294607	8.594756	4.784722	0.8953	0.3746
ATO	29	27	.0469863	.0097494	.0385848	.0146466	4.7065[b]	0.0000
NIM	29	27	.0211301	.0079557	.039961	.0084547	1.6775[a]	0.0992
NNIM	29	27	-.0063164	.0127651	.0104491	.0902014	-1.1318	0.2627

Notes: [a, b] the authors' calculations.

Table 6. Descriptive statistics for asset quality indicators

Variable	N		Mean		Standard deviation		t-test for equality of means	
	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	t-value	p-value
The full period of 2005-2008								
PEA	59	51	.0282375	.0157662	.0737729	.0180706	1.1765	0.2420
APL	59	51	.0413211	.0037624	.0835705	.0082911	3.1940[b]	0.0018
WRL	59	51	.0055383	.0003419	.0122273	.0007625	3.0280[b]	0.0031
LR	59	51	.365017	.5734779	.2051506	.1945502	-5.4429[b]	0.0000
LTD	58	47	.8580221	3.778197	.5429083	8.580871	-2.5883[b]	0.0110
PEA	30	24	.0328651	.0187694	.0865022	.0211725	0.7785	0.4398
APL	30	24	.0400166	.001942	.0825732	.0045813	2.2518[b]	0.0286
WRL	30	24	.006241	.0002697	.0162735	.0008674	1.7921[a]	0.0789
LR	30	24	.3614333	.5845063	.2012077	.1823678	-4.2182[b]	0.0001
LTD	29	22	.7923552	2.716399	.3966922	4.751402	-2.1777[b]	0.0343
The crisis period of 2007-2008								
PEA	29	27	.0234502	.0130968	.0589667	.0146867	0.8866	0.3792
APL	29	27	.0426705	.0053806	.0860313	.0103851	2.2357[b]	0.0295
WRL	29	27	.0048113	.000406	.0058594	.0006658	3.8810[b]	0.0003
LR	29	27	.3687243	.5636749	.2126531	.2077389	-3.4663[b]	0.0010
LTD	29	25	.923689	4.712579	.6585807	10.9284	-1.8660[a]	0.0677

Notes: [a, b] the authors' calculations.

Table 7. Descriptive statistics for liquidity ratios

Variable	N		Mean		Standard deviation		t-test for equality of means	
	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	t-value	p-value
The full period of 2005-2008								
CTA	59	51	.0667569	.2396403	.1152699	.1886351	-5.8847[b]	0.0000
CTD	58	47	.1719636	2.672275	.3730816	7.9559	-2.3929[b]	0.0185
The pre-crisis period of 2005-2006								
CTA	30	24	.0734691	.2309277	.1162724	.1735931	-3.9801[b]	0.0002
CTD	29	22	.1292374	1.493405	.1609158	3.466882	-2.1229[b]	0.0388
The crisis period of 2007-2008								
CTA	29	27	.0598132	.2473847	.1158579	.2040573	-4.2678[b]	0.0001
CTD	29	25	.2146898	3.709681	.5036621	10.41183	-1.8080[a]	0.0764

Notes: [a, b] the authors' calculations.

Table 8. Descriptive statistics for risk ratios

Variable	N		Mean		Standard deviation		t-test for equality of means	
	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	t-value	p-value
The full period of 2005-2008								
DTA	59	51	.4500887	.4495503	.2056489	.3012	0.0111	0.9912
EM	59	51	1578.193	5.754774	5039.106	3.298237	2.2271[b]	0.0280
ETD	58	47	.3022069	2.454907	.4774994	7.214716	-2.2688[b]	0.0254
TLE	59	51	16.46551	3.882579	14.31854	3.436397	6.1217[b]	0.0000
TLSc	59	51	1498.105	8.780489	4771.364	8.630554	2.2277[b]	0.0280
RETA	59	51	.0394936	.0079772	.0306764	.09005	2.5256[b]	0.0130
The pre-crisis period of 2005-2006								
DTA	30	24	.4489903	.4661065	.2131829	.2978816	-0.2459	0.8067
EM	30	24	2502.382	5.305613	6699.767	3.291145	1.8224[a]	0.0741
ETD	29	22	.2374219	1.799382	.2426372	5.033436	-1.6740	0.1005
TLE	30	24	15.84814	3.417809	12.41899	3.276893	4.7643[b]	0.0000
TLSE	30	24	2369.626	7.340219	6324.304	7.022951	1.8264[a]	0.0735
RETA	30	24	.0429555	.0224574	.0345515	.0930878	1.1160	0.2696
The crisis period of 2007-2008								
DTA	29	27	.4512249	.4348337	.2013234	.3090169	0.2368	0.8137

Table 8 (cont.). Descriptive statistics for risk ratios

Variable	N		Mean		Standard deviation		t-test for equality of means	
	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	t-value	p-value
The full period of 2007-2008								
EM	29	27	622.136	6.154028	2060.859	3.314565	1.5521	0.1265
ETD	29	25	.3669919	3.031769	.6297521	8.766841	-1.6345	0.1082
TLE	29	27	17.10417	4.295708	16.25162	3.582404	4.0033[b]	0.0002
TLSE	29	27	596.5307	10.06073	2019.162	9.797728	1.5083	0.1373
RETA	59	51	.0359123	-.004894	.0262055	.0869664	2.4133[b]	0.0192

Notes: [a, b] the authors' calculations.