How to Cite:
Khalifa, J. (2024). The financial crisis: An opportunity for Islamic finance. *International Journal of Economic Perspectives*, *18*(6), 981–989. Retrieved from https://ijeponline.org/index.php/journal/article/view/538

The financial crisis: An opportunity for Islamic finance

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***Abstract*---**The current financial crisis has exposed the flaws and excesses of capitalism, sparking a debate about its future. Some advocate for rebuilding the system, while others call for making it more ethical. A stable financial system needs mechanisms that ensure liquidity. Islamic Sharia offers a financial model that moralizes financial flows. The stability of the financial system, it argues, can only be achieved within an ethical and religious framework that condemns any unhealthy use of money. Using regression analysis on panel data, we tested the performance of the Islamic financial system and examined how ethical Islamic banking practices have contributed to its resilience during financial crises.

***Keywords*---**Islamic finance, Conventional finance, Panel Data.

1. Introduction

The financial crisis has detrimental effects on the broader economy, often leading to an economic downturn or even a recession. These impacts typically include a credit crunch, reduced investment, and a decline in household confidence. Zineb et al. (2010) identifies three primary forms that any financial crisis can take: speculation crisis, credit crisis, or liquidity crisis. For some banks, this loss of trust results in a rush of customers withdrawing deposits, leading to a reluctance among banks to lend to one another due to fears of a domino effect of bank failures. The global financial crisis has underscored the fragility of the conventional financial system and posed a threat to the advancement of Islamic finance. Two fundamental causes of this crisis were excessive indebtedness and speculation, which are prohibited in Islamic finance as Riba and Gharar, because they create a disconnect between the financial and real economies. This situation presented an opportunity for Islamic finance to demonstrate its stability. Denis Ramlet (2004) in Catholica suggests that traditional interest-bearing loans could be replaced by "partial" or "participatory" loans. Through a system of profit and loss sharing, interest is converted into equity, eliminating speculation.

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Submitted: 27 July 2024, Revised: 18 August 2024, Accepted: 06 Sept 2024

Efficient finance allocates resources at the lowest cost and supports the economy without significant disruption or risk. Therefore, the financial system needs mechanisms that ensure liquidity through markets that remain liquid (de Boissieu and Artus, 2008). This enables true economic rationality, grounded in responsibility, solidarity, the general interest, and adherence to good conduct. The Islamic Financial System (IFS), based on solidarity and risk-sharing, aims to meet these aspirations while providing a secure and efficient financing method minimizing risks and maintaining stability. Studies by Chia and Wang (2008) and Dar and Presley (1996) highlighted that cyclical fluctuations were driven by interest rates, which Islamic economics prohibits, thereby contributing less to economic instability. Aisyah (2009) examined the relationship between bank size, security value, and insolvency risk for a sample of listed banks in 21 industrialized countries, finding higher insolvency risks in banks from the most developed nations. Al-Zumai and Al-Wasmi (2016) analyzed the 2008 crisis's impact on the Islamic finance industry in the MENA (Middle East and North Africa) region, concluding that the crisis provided a test and opportunity for Islamic finance to influence and integrate with conventional finance. Ghenimi et al. (2016) studied a sample of 11 Islamic banks and 17 conventional banks across the GCC, Mediterranean, and MENA regions from 2005 to 2013. They observed a significant increase in the volatility of conventional banks during the financial crisis, whereas Islamic banks remained stable. Zaiane and Ben Moussa (2021) used the generalized dynamic method of moments to estimate several regressions on a sample of 123 banks (34 Islamic and 89 conventional) from 13 MENA countries over the period 2000-2013. Their findings revealed that bank size, asset quality, specialization, and diversification are key factors influencing the performance of both Islamic and conventional banks. Additionally, macroeconomic indicators (GDP and inflation) and regulatory quality affect the two types of banks differently. Finally, both financial crises and political instability negatively impact bank performance.

2. Methodology and analysis of results

The aim of this paper is to evaluate the impact of the financial crisis on Islamic banks, exploring whether they can serve as a viable alternative to the conventional financial system. We selected a sample of 29 Islamic banks across seven countries (UAE, Bahrain, Jordan, Kuwait, Malaysia, Saudi Arabia, Turkey) for the period 2006-2018. The data was sourced from the Thomson Financial Full Company Report database, Bankscope, Datastream, and the World Bank (WB). Our analysis is based on the model developed by Hasan and Dridi (2010). The sample includes 90 conventional banks and 30 Islamic banks. The model is specified as follows:

$$Dependent\ variable_{it} = f(bankspecific_{it}, macro\ variable_{it})$$

We will assess the performance of Islamic banks using three key measures:
$Profitability_{ijt}$: this is the ratio of profits at time t to profits at time (t-1) for bank i in country j

$CreditGrowth_{ijt}$: the ratio of credit at time t to credit at time (t-1) for bank i in country j $Asset\ Growth_{ijt}$: the ratio of assets at time t to assets at time (t-1) for bank i in country j.

The explanatory variables in the models are categorized into two groups:

- Characteristics specific to banks:$invest_{ijt}$: this is the ratio between the amount of investments and the total assets of bank i which belong to country j at date t. $Leverage_{ijt}$: this is the ratio between the amount of capital and the total assets of bank i which belongs to country j at date t. ROA_{ijt}: the ratio between net income and the total assets of bank i belonging to country j at date t. (ROA: Return On Assets).
- Macroeconomic variables: GDP_{jt}: the GDP growth rate of country j at date t. INF_{jt}: this is the inflation rate of country j at date t. UAE_{jt}: this is a dummy variable relating to bank i which belongs to country j at date t. It takes the value 1 if bank i belongs to the KAU and 0 if not. $Bahrain_{ijt}$: this is a dummy variable for bank i belonging to country j at date t. It takes the value 1 if bank i belongs to Bahrain and 0 if not. $Jordan_{ijt}$: this is a dummy variable for bank i belonging to country j at date t. It takes the value 1 if bank i belongs to Jordan and 0 if not. $Kuwait_{ijt}$: this is a dummy variable for bank i belonging to country j at date t. It takes the value 1 if bank i belongs to Kuwait and 0 if not. $Malaysia_{it}$: this is a dummy variable for bank i belonging to country j at date t. It takes the value 1 if bank i belongs to Malaysia and 0 if not. $Saoudi_{it}$: this is a dummy variable for bank i belonging to country j at date t. It takes the value 1 if bank i belongs to Saudi Arabia and 0 if not. $Turkey_{it}$: this is a dummy variable for bank i belonging to country j at date t. It takes the value 1 if bank i belongs to Turkey and 0 if it does not.

Three models were estimated and are presented below:

Model 1:

$$Profitability_{ijt} = \alpha_0 + \alpha_{1t} Invest_{ijt} + \alpha_{2t} Leverage_{ijt} + \alpha_{3t} ROA_{ijt} + \alpha_{4t} GDP_{jt}$$
$$+\alpha_{5t} INF_{ijt} + \alpha_{6t} UAE_{jt} + \alpha_{7t} Bahrain_{jt} + \alpha_{8t} Jordan_{jt} + \alpha_{9t} Kuwait_{jt} + \alpha_{10t} Malaysia_{jt}$$
$$+\alpha_{11t} Saoudi_{jt} + \alpha_{12t} Turkey_{jt} + \varepsilon_{ijt}$$

Model 2:

$$CreditGrowth_{ijt} = \beta_0 + \beta_{1t} Invest_{ijt} + \beta_{2t} Leverage_{ijt} + \beta_{3t} ROA_{ijt} + \beta_{4t} GDP_{jt}$$
$$+\beta_{5t} INF_{ijt} + \beta_{6t} UAE_{jt} + \beta_{7t} Bahrain_{jt} + \beta_{8t} Jordan_{jt} + \beta_{9t} Kuwait_{jt} + \beta_{10t} Malaysia_{jt}$$
$$+\beta_{11t} Saoudi_{jt} + \beta_{12t} Turkey_{jt} + \omega_{ijt}$$

Model 3:

$$AssetGrowth_{ijt} = \lambda_0 + \lambda_{1t} Invest_{ijt} + \lambda_{2t} Leverage_{ijt} + \lambda_{3t} ROA_{ijt} + \lambda_{4t} GDP_{jt}$$
$$+\lambda_{5t} INF_{ijt} + \lambda_{6t} UAE_{jt} + \lambda_{7t} Bahrain_{jt} + \lambda_{8t} Jordan_{jt} + \lambda_{9t} Kuwait_{jt} + \lambda_{10t} Malaysia_{jt}$$
$$+\lambda_{11t} Saoudi_{jt} + \lambda_{12t} Turkey_{jt} + \varphi_{ijt}$$

With, $\boldsymbol{\alpha_{pt}}$ β_{qt}, λ_{st} : The coefficients of the explanatory variables (q = 1, …, 12) and (t = 1, …, 13), $\boldsymbol{\alpha_0}$, β_0, λ_0: A constant, i : The index relative to each bank (i = 1, …, 29), j : The index relative to each country (j = 1, …, 7), ω_{ijt}: The error term.

The hypotheses of our study are as follows:
H1: The 2007 financial crisis has an impact on Islamic banks. If this hypothesis is true, Islamic finance cannot be considered a solution to the failures of the conventional financial system.
H2: The 2007 financial crisis does not have an impact on Islamic banks. If this hypothesis is true, Islamic finance can be considered a viable solution to the failures of the conventional financial system.

2.1 Descriptive Statistics

We used STATA 12 software for conducting various estimations and obtaining results. The Pearson correlation coefficients, all below the tolerance limit of 0.7, ensured no issues during the estimation of the three models (Table 1). Next, we employed the ordinary least squares (OLS) method to achieve a better fit by minimizing the sum of the squared residuals. We estimated three models with Profitability, Credit Growth, and Asset Growth as dependent variables. The results of these OLS estimations are detailed below. To ensure the reliability of our panel data, we conducted a unit root test using the Levin Lin Chu test. Our findings indicated that the p-values for the retained variables were all below 10%, leading us to reject H0 and confirm their stationarity. Dummy variables were treated as stationary from the outset.

Table 2. Unit root test

Variables	Statistic	p-value
Profitability	6.5e+03	0.003
Credit Growth	14.155	0.084
Asset Growth	-60.160	0.000
Invest	5.802	0.006
Leverage	-29.184	0.000
ROA	2.293	0.004
GDP	-10.802	0.000
INF	-12.953	0.000

In this test, the p-value will be compared with 10%. If p-value < 10% then H0 is rejected and if p-value > 10% then H0 is accepted. With H0: all the series are non-stationary.

Table 1. The correlation matrix

	Profitability	Credit Growth	Asset Growth	Invest	Leverage	ROA	GDP	INF	UAE	Bahrain	Jordan	Kuwait	Malaysia	Saoudi	Turkey
Profitability	1.000														
Credit Growth	-0.082	1.000													
Asset Growth	0.165**	-0.206*	1.000												
Invest	0.029	-0.183*	0.092	1.000											
Leverage	-0.072	-0.245*	0.403*	0.130***	1.000										
ROA	0.124***	0.048	-0.175**	0.083	0.442*	1.000									
GDP	0.039	0.184*	0.013	-0.000	0.038	0.023	1.000								
INF	0.063	-0.038	-0.055	0.003	-0.052	-0.016	0.073	1.000							
UAE	-0.042	-0.185*	0.080	-0.140**	0.124***	-0.089	0.009	-0.099	1.000						
Bahrain	-0.045	0.011	-0.045	-0.062	-0.069	0.028	-0.339*	0.175**	-0.208*	1.000					
Jordan	-0.025	-0.005	0.349*	-0.135***	-0.021	-0.161**	0.099	0.079	-0.155**	-0.155**	1.000				
Kuwait	0.076	0.010	-0.156**	0.106	0.495*	0.617*	0.032	-0.064	-0.208*	-0.208*	-0.155**	1.000			
Malaysia	0.092	0.029	-0.141**	0.092	-0.274*	-0.279*	-0.251*	0.029	-0.182*	-0.183*	-0.136***	-0.183*	1.000		
Saoudi	-0.001	-0.006	-0.119***	0.199*	-0.212*	-0.029	0.043	-0.053	-0.155**	-0.155**	-0.115	-0.155**	-0.136***	1.000	
Turkey	-0.057	0.160**	0.069	-0.043	-0.122***	-0.160**	0.451*	-0.066	-0.183*	-0.183*	-0.136**	-0.183*	-0.100*	-0.136***	1.000

Significant at a threshold of : (*) 1% ; (**) 5% et (***) 10%

Source: author

We will use the Hausman test to choose between estimating a fixed-effects model or a random-effects model.

Table 3. Estimation of the Profitability variable

Dependent variable: Profitability		
Fisher probability	Prob > F = 0.007	Prob > F = 0.004
Fisher's value	F (3,171) = 11.62	F(5,169) = 14.24
probability Chi2 ()[a]	Prob > chi2 = 0.006	Prob > chi2 = 0.000
Wald chi2 value	Wald chi2(3) = 13.55	Wald chi2(12) = 22.19
R^2	0.719	0.627
Probability of Hausman Test	Prob>chi2 = 0.545	Prob>chi2 = 0.627
The model chosen for estimation	**The random effects model**	
Auto-correlation test (P > F)[b]	0.000	
Assumption used	**We reject H0: no auto-correlation**	

- ✓ Values in brackets represent t-Students.
- ✓ Significant at a threshold of : (*) 1% ; (**) 5% et (***) 10%.
- ✓ [a] The Wall test is used to test the correlation between the explanatory variables and the residuals. We compare the probability of (Prob > chi2) at a threshold of 5% with H0: no correlation between the variables used and the residuals. If (Prob > chi2) < 5%, then H0 is accepted.
- ✓ [b] For the auto-correlation test, the Fisher probability is compared at a threshold of 5% with H0: absence of first-order auto-correlation. If (P>F) < 5%, then H0 is rejected.

For **Model 1 (Profitability)**, we employed the random effects model in both estimations. This choice was supported by the Hausman test probability values of 0.546 and 0.627 for the first and second estimates, respectively. The Hausman test assesses the likelihood of correlation between random and fixed effects; with probabilities above 5%, confirming no autocorrelation issues. Additionally, we conducted tests to validate our models and justify their significance. These included testing for correlation between explanatory variables and residuals using the Prob>chi2 values, all below 5% across both estimates of Model 1, indicating no correlation issues.

Model significance was evaluated using Fisher's probability, which consistently yielded values below 5% across all estimates of Model 1 (Profitability). This confirms the global significance of the estimated model. The coefficient of determination, R2, was found to be 0.719 and 0.626 in the two retained

estimates, indicating a strong linear fit for Model 1. The detailed estimation results for Model 1 are presented in Table 4.

Table 4. Analysis of the estimation of the variable Profitability- Credit Growth- Asset Growth

Variables	**Impact on the Profitability Variable**		**Credit Growth**		**Asset Growth**	
	+	**-**	**+**	**-**	**+**	**-**
Invest	Not significant		Not significant		Not significant/ Significant	
Leverage		Significant	Significant		Significant	
ROA	Significant		Not significant			Not significant
GDP	Not significant		Not significant			Not significant
INF	Not significant			Not significant		Not significant
UAE	Not significant			Not significant		Not significant
Bahrain	Not significant			Not significant		Not significant
Jordan	Not significant			Not significant	Significant	
Kuwait	Not significant			Not significant		Significant
Malaysia	Not significant			Not significant		Not significant
Saoudi	Not significant			Not significant		Not significant
Const	Significant			Significant	Not significant	

From the table, the variable measuring the ratio of capital to total assets of Islamic banks shows a negative influence on the dependent variable, Profitability, which represents the growth rate of profitability in Islamic banks. This suggests that as this ratio increases, the profitability of Islamic banks tends to decrease. On the other hand, the variable ROA (Return on Assets) positively impacts Profitability. Therefore, higher levels of economic profitability contribute positively to the profitability of Islamic banks. Regarding the macroeconomic variables, they exhibit a positive impact on the dependent variable, although not statistically significant. This observation supports the conclusion that the 2007 financial crisis did not significantly affect the profitability of Islamic banks. It indicates that the economic conditions in the countries where Islamic banks operate positively influence their performance. Consequently, we confirm the second hypothesis, which suggests that the 2007 financial crisis had no impact on Islamic banks. This implies that Islamic banks can indeed be considered as an alternative solution to the conventional financial model.

It is noteworthy that the dummy variable $Turkey_{ijt}$ was excluded from both estimations due to collinearity issues with other variables.

For **Model 2 (Credit Growth)**: We opted for a fixed effects model in the first estimation and a random effects model in the second estimation. This decision was supported by the Hausman test probabilities of 0.033 and 0.144 for the first

and second estimations, respectively. The probability value (Prob>F = 0.000) for Model 2 (Credit Growth) was less than 5% in both estimates, indicating no correlation issues between explanatory variables and residuals. The estimated Model 2 (Credit Growth) is globally significant. The coefficient of determination, R2, was found to be 0.764 and 0.623 in the first and second estimations, respectively, indicating a strong linear fit. The variable measuring the ratio of capital to total assets of Islamic banks positively influences the level of credit granted to customers, independent of macroeconomic indicators. However, this variable negatively affects Credit Growth, which measures the growth rate of loans granted by Islamic banks. In economic downturns, Islamic banks tend to decrease lending rates. Macroeconomic variables generally have a negative impact on Credit Growth, with the exception of the GDP growth rate, which although positive, was statistically insignificant. This observation supports the conclusion that the 2007 financial crisis did not significantly impact the profitability of Islamic banks. Therefore, Islamic banks can be viewed as a viable solution within the conventional financial model, especially when economic conditions are expanding.

For **Model 3 (Asset Growth)**: We used a fixed effects model in the first estimation and a random effects model in the second estimation, based on Hausman test probabilities of 0.000 and 0.220, respectively. For Model 3 (Asset Growth), there were no issues of correlation between explanatory variables and residuals, and the model was globally significant with a strong linear fit. Four variables were found to be significant: the Invest variable positively impacts Asset Growth, indicating that increased investments by Islamic banks can enhance their asset growth. The Leverage variable was statistically significant at the 1% level, with t-values of 3.99 in the first estimation and 7.10 in the second, positively influencing Asset Growth by increasing the ratio of capital to total assets. Dummy variables for Jordan and Kuwait also affected asset growth rates, with Jordan positively and Kuwait negatively influencing economic conditions. Other macroeconomic variables had a negative impact on Asset Growth, although none were statistically significant, supporting the conclusion that the 2007 financial crisis did not significantly affect Islamic banks' profitability. Thus, Islamic banks can be considered as part of a solution within the conventional financial model, especially under expanding economic conditions.

Conclusion

The series of crises spanning from 1929 to 2007 has underscored inherent flaws within the capitalist system. This system predominantly relies on practices such as usury (riba) and speculation (mayssir). The subprime crisis, for instance, was triggered by escalating interest rates and speculative activities. In contrast, Sharia law upholds principles akin to those of capitalism private property, competition, individual freedom, and yet diverges sharply in its stance on financing methods. Sharia law unequivocally opposes usury practiced by conventional banks and the speculative tendencies inherent in market finance. Islamic finance traces its origins back to the early days of Islam, with the contractual frameworks employed today rooted in practices dating to the time of the Prophet Muhammad (ﷺ), including financing caravans. Unlike conventional finance, Islamic finance does not view economic rationality as an independent pursuit; rather, it situates the

satisfaction of needs within an eschatological framework, emphasizing the relationship between humans and God (ﷻ).

Based on our examination of Islamic banks in the aftermath of the 2007 financial crisis, we assert that Islamic banks can indeed offer a viable alternative to the shortcomings of conventional banking. The participatory approach of Islamic finance has demonstrated its resilience in withstanding the impacts of financial and economic crises.

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