THE IMPACT OF SUBPRIME CRISIS ON THE EFFICIENCY AND PERFORMANCE ISLAMIC BANKS

A CASE OF MENA COUNTRIES

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Abstract

The aim of this paper is to study the efficiency and the performance of the Islamic bank in MENA area around the subprime crisis of 2008 using the CAMELS approach and the Data envelopment (DEA) approach. The former was used by the US government in order to evaluate the stability and the performance of banks during the subprime crisis, and the latter used linear programming techniques to estimate the frontier of producing a sample of observations. Our empirical results show that following the subprime crisis of the capital adequacy ratios, operational efficiency, asset quality and liquidity did not change significantly. While the ratio of profitability has decreased significantly, the score of efficiency shows that la Islamic bank remains efficient under subprime crisis.

Keywords: Technical Efficiency, Subprime Crisis, Islamic banking, CAMELS, Performance

INTRODUCTION

In the recent decades, the Islamic financial system has grown considerably following the increase in oil rents in the Gulf countries. The emergence of this system is mainly due to the investors' trust in Islamic banks especially after the subprime crisis; a crisis that has resulted in the collapse of the world's conventional banks such as Lehman Brothers Bank, Indymac Bank,

City Group, etc. This critical situation is basically the outcome of losing confidence in the mortgage market in the United States. Compared to the 416 billion in 2010, Ernst & Young claimed that Islamic financial assets in the MENA region will reach the highest growth rate in 2015 which may reach 990 billion dollars. Similarly, Standard & Poor' report published in October 2012 concluded that the development of Islamic banks operating in the countries of North Africa could contribute to the weakening of some financial pressure.

The purpose of this paper is, therefore, to study the impact of the subprime crisis on the efficiency and performance of Islamic banks in selected countries in the MENA region. The rest of the paper is divided as follows. The second section describes the literature review. The third section presents the econometric methodology and data. The fourth section presents the empirical results and interpretations. The fifth and final section is the conclusion.

PRODUCT CONFORMITY WITH THE PRINCIPLES OF CHARIAA

The Islamic financial system is structured and regulated based on the principles of Islam. According to Monzer (1982) and Beck et al, (2013), the activity of Islamic banks mainly refers to short texts of the Qur'an and Sunnah. Indeed, these texts prohibited loan with interest (Ribaa), hoarding, coincidence (Al-Gharar), speculation (Al-Maysir) and irregular activities. All these activities are replaced with the principle of profit and loss sharing and of the existence of a tangible asset.

The loan interest (Riba AI)

The interest (Riba) is prohibited by Islam since it does not consider money as property which is likely to produce revenues during laps of time. However, Islam does not prohibit having loans but excludes the interest payments. According to Iqbal and Mirakhor (2006,) money is a potential capital and it became so after its association with another resource to undertake a productive activity.

The principles of Islam have well clarified the concept of involving the lender in the profit realized as well as in the loss that we may suffer from. Therefore, many economists consider that the alternative for the interest-based financing is crowd funding based on the principle of sharing profit and loss.

Hoarding

Hoarding is the accumulation of currency for profit making and not for productive investment principle. This practice is prohibited by the principles of Islam as it diverts funds away from productive activities.

Chance (Al-Gharar)

This highlights the activities that are characterized by uncertainty or ambiguity. Gharar refers to ignorance regarding the subject of the contract during a trade. It also refers to one party who is exposed to an excessive risk during a business transaction due to the ambiguity of price, of quality and quantity of the counter-value, and of the date of delivery; thereby causing an unexpected loss to one of the two parties.

Speculation (Al-Maysir)

Speculation is any form of agreement between parties where the right of contracting depends on a random event. In fact, speculation is prohibited because it encourages the effortless accumulation of wealth. This contradicts with Islam, which calls for the association of an activity with any proposed contract. This provides reassurance as to the disconnection issues between the financial sector and the real economy.

The Unethical Investment

The Islamic financial system prohibits investment in certain economic activities and companies who disobey the fundamental principles of Islam.

THE PRINCIPAL OF SHARING PROFIT AND LOSS AND THE EFFICIENCY OF BANKING SYSTEM

Islamic bank is based on the principal of social justice which assumes that the investor and the entrepreneur must equitably share the profits and losses. According to Qureshi (1991) and Iqbal (2006), the principle of sharing profit and loss, encourages banks to be more interested in the viability of projects, in their ability to generate positive income and in the skills of the contractor. This latter is encouraged to invest in the field of production where funds' providers can also face the risk. This actually endorses economic growth since the process of creation and distribution of economic wealth is representative of real productivity.

Cihak & Hesse (2010) and Syed Ali (2007) showed that the principle of sharing profits and losses enables Islamic banks to maintain the stability of their net assets as well as to avoid difficult economic situations. Indeed, this principle allows Islamic banks to transfer the credit risk from its assets to its liabilities (deposits investment). Therefore, a decrease in assets automatically causes a reduction of liability. Islamic finance is also based on Murabaha and Ijaras operations that require a real asset which must be the basis of all financial transactions. This link with the real economy reduces the leverage and prevents the involvement of Islamic banks in speculative behavior that leads to instability.

Mirakhor, (2008) and Siddiqi (2008) defended the idea that the Islamic financial system is resistant to shocks due to its inherent stability. They also supported the idea that a banking system without usury (riba) and game (maysir) is a better alternative to the current conventional system. Iqbal and Llewellyn (2002), meanwhile, have shown that international financial systems can benefit from diversified financial products and operations available in Islamic banks which are characterized by risk sharing.

In the same vein, Kan et al. (2009) and Hassen Dridi, (2010) showed that, during the subprime crisis, Islamic banks have withstood more than conventional banks. Studying the factors of efficiency in the Malaysian context during the period from 1984 to 1997, Samad and Hassan (2001) found that Islamic banks are more liquid, less risky and more stable than the conventional ones.

Based on a comparative analysis between Islamic and conventional banks in Turkey between 1999 and 2000, El Gamel and Inanoglu (2004) concluded that Islamic banks are really efficient and that they are improving thanks to internal characteristics. However, other studies have shown that the recent financial crisis has knocked the whole financial system including Islamic banks (Rashwan, 2012).

Studying the strength of Islamic and conventional banks following the subprime crisis, Khawla B. and Mahmoud Sami N. (2013) have shown that there is no significant difference between these banks in terms of solidity, liquidity and level of their non-performing loans. This similar behavior of the two groups of banks is explained by the idea that Islamic banks are mimicking the commercial strategies adopted by the conventional banks. Golde B and Rai (1996) point out that the operations of Islamic banks are generally more risky than those of conventional banks which therefore cause a decline in their performance.

The results of empirical studies differ concerning the effects of the subprime crisis on Islamic banks. Our goal will be, then, the analysis of the effectiveness and performance of Islamic banks facing this crisis. The methodology adopted to address this problem is based on the application of the Wilcoxon test. This test is based on intertemporal and inter-banking comparisons of six performance indicators developed by CAMELS (capital adequacy, profitability, asset quality, liquidity, compliance with the Shariaa and operational efficiency). In addition to Wilcoxon test, we will apply the nonparametric method DEA.

METHODOLOGY

Our sample consists of 16 Islamic banks in the MENA region over the period which runs from 2005 to 2011. The data are collected from the database scope Bank.

The CAMELS method

The CAMELS method was developed in the early seventies by US federal regulators to structure the process of rating and assessment of the Banks. According to Dang (2011), this approach was used by the US government in order to evaluate the stability and the performance of banks during the subprime crisis. The CAMELS approach is the assessment of the bank's performance based on six factors:

Capital Adequacy

This indicator measures the solvency and the ability of the bank to hedge the risk of unpredictable losses. It can be presented via three ratios:

Total Equity / Total Assets

This ratio shows measures the ability of capital to cope with losses.

Total capital / Total investment

This ratio measures the ability of capital to cover the bank's investments.

Total equity / Total liabilities

This ratio measures the ability of capital to cover the bank debt and to honor its commitments.

Asset Quality

This indicator assesses the extent of non-performing assets in banks' portfolios as well as the damage that such assets can have on financial performance. This dimension can be evaluated through two ratios:

Reserves for Investment / Total Investment Risks

This ratio shows the bank's ability to make profitable investments and to generate income.

Provision for Investment Risk / Investment Assets Financing Income

This ratio measures the bank's ability to insure against uncertain risks while investing.

Operational Efficiency

This indicator measures the quality of bank management system and analyzes the dynamics of its effectiveness. This efficiency can be examined through two ratios.

Total Investment and Financing / Total Deposits

It is about the measure of the level of bank's rationality concerning the distribution of its resources.

Cost / Income

This ratio measures the efficiency of the bank and the ability of its revenue to cover its costs.

Profitability

This dimension assesses the bank's performance and it can be measured by two ratios.

Net Profit after Tax / Total Assets

This ratio measures the efficiency of a profit unit in relation to an asset unit.

Net Income after Taxes / Total Capital

It measures the return on profit unit n relation to a unit value of the total equity. The higher the value of this ratio, the better is the financial health of a bank.

Liquidity

This indicator measures the risk of the bank's liquidity. It can be enjoyed by two ratios:

Funds lent to banks / Borrowed funds:

Total Investment / Total assets:

The Nonparametric Method DEA

The method of data envelopment is a nonparametric method of estimating border functions, which consider all the possibilities of production as a convex set.

Two distinct directions are used in order to measure the technical efficiency by DEA. The first one aims at maximizing outputs and it is applied when seeking to increase the quantities of outputs without changing the quantity of inputs used. On the other hand, the other method has the objective of minimizing inputs and it is only applied when seeking to proportionally reduce the amounts of inputs without changing the quantity of outputs.

The DEA method uses linear programming techniques to estimate the frontier of producing a sample of observations. This production frontier is at the top of the interpretations and gathers the most effective units in the sample. The observations below present the less efficient units in the sample.

The technical efficiency of the sample unit is related to the distance which separates it from the envelope. This efficiency is relative only in so far as it contains the most efficient units of the sample.

DEA can analyze small sample and it is able to bind multiple inputs to multiple outputs. It also offers the possibility to use different units for both inputs and outputs.

Our study is based on the approach by the intermediation that corresponds to the operation of Islamic banks. The inputs are El Murabaha, Mudarabah El, and El Ijara; while the outputs are the current accounts, investment accounts and savings accounts.

EMPIRICAL RESULTS AND DISCUSSIONS

The table below presents the results according to the CAMELS approach.

Table 1: Mean Comparison Test

		Before the crisis	After the crisis	Wilcoxon Test
Capital Adequacy	*Total Equity / Total Assets	12.52	20.08	0.254
	*Total capital / Total investment:	18.50	30.95	0.415
	* Total capital / total liabilities	15.23	13.52	0.689
Asset Quality	* Reserves for investment risk / total investment	18.02	19.15	0.324
	* Reserve for investment / financing income of investment assets	15.81	16.25	0.987
operational Effectiveness	* Total investment and financing / total deposits	1.50	2.53	0.252
	* Cost / income	28.35	19.96	0.221
Profitability	* Net profit after tax / total assets	1.72	1.63	0.013
	* Net income after taxes / total equity	0.73	0.70	0.383
Liquidity	* Funds loaned to banks / Borrowed funds	0.86	0.84	0.659
	* Total investment / Total Assets	0.73	0.53	0.114

The intertemporal analysis shows that the ability of Islamic banks to cope with losses and risks after subprime crisis was not significantly affected.

The ratio total equity / total assets had, before and after the crisis, an average increase of 12.52 to 20.08. This variation was not significant which indicates that Islamic banks' ability to cope with risks and losses was not affected after the subprime crisis.

After the crisis, the coverage of Islamic banks' funds during investments has witnessed an increase, albeit a non significant one. This result is explained by the cautiousness of Islamic

banks in their investment choices. These banks are always seeking partnership with their customers and with the most profitable projects under the principle of sharing profits and losses. During the application of Mudaarabah and Musharaka, Islamic banks tend to use the venture capital approach which is mainly based on the filtering and selection of investment projects. This approach allows banks to fight up against financial crises caused by unconsidered investment. The subprime crisis has not affected the ability of Islamic banks to meet its obligations and its debts.

The analysis of the ratio of asset quality shows that there is not a significant difference before and after the subprime crisis. Indeed, the ratio of reserves for investment risk / total investment has increased from 18.02 to 19.15; however, this increase is not significant. This indicates that the ability of Islamic banks to make profitable investments and to generate income has not been affected by the crisis.

After the crisis, the ratio Reserve for investment / come of investment assets financing has increased from 15.81 to 16.25. Using Wilcoxon's mean comparison test, results show that this variation is not significant. This indicates that the crisis has not affected the bank's ability to fight against the uncertain risks associated with investing and financing income. This result can be explained by the fact that revenue generated by Islamic banks comes mainly from Mudaraba and mucharaka operations, while the risk these operations is shared by the investor/the customer and the bank. Operational effectiveness of Islamic banks has not varied significantly after the crisis. In fact, these results prove that Islamic banks were able to maintain their financial balance in terms of costs. These costs are associated with Islamic financing contracts, and revenues.

After the crisis, economic performance measured by ROA ratio has decreased significantly which implies that the banks' performance and capacity to generate profits has deteriorated. This result can be explained by the insecurity of the investment environment after the subprime crisis.

The variation in equity ratio (ROE) is not significant. Therefore, we can conclude that Islamic banks' efficiency in allocating its funds and generating incomes has not been affected by subprime crisis.

The inter-temporal analysis of liquidity ratios shows that the averages of these ratios have not significantly changed after the subprime crisis. This result is explained by the too limited intervention of Islamic banks in the interbank market; it is also due to their vigilance and prudence in the investment of cash resources following the principles of Shariaa.

The scores of technical efficiency obtained by nonparametric method AED are presented in Table (2) below.

Table 2: Technical Efficiency Scores

	2005	2006	2007	2008	2009	2010	2011
El baraka	0.68	0.79	0.81	0.82	1	0.84	0.84
Abu dhabi islamic bank	0.84	0.82	0.84	0.87	0.87	0.87	0.84
Al rajhi bank	0.95	0.95	0.97	0.95	0.95	0.98	1
Faisal islamic bank	0.71	0.73	0.71	0.72	0.70	0.79	0.74
Arab islamic bank	0.84	0.85	0.88	1	0.90	0.91	0.86
Q international islamic bk	0.87	0.87	0.88	0.87	0.85	0.87	0.89
Qatar islamic bank	0.87	0.87	0.90	0.87	0.88	0.87	0.87
Parisian bank	1	0.90	0.92	0.93	0.88	1	0.93
Jordan islamic bank	0.88	0.87	0.87	0.87	0.87	0.84	0.88
Islamic inter abrab bank	0.81	0.80	0.81	0.79	0.79	0.81	0.84
Al baraka islamic bank	0.73	0.69	0.74	0.75	0.76	0.78	0.78
ABC islamic bank	1	1	0.70	0.67	0.65	0.63	0.63
Bahrain islamic bank	0.79	0.77	0.76	0.77	0.78	0.77	0.63
Al baraka bank	0.97	0.96	0.94	0.97	0.97	0.99	1
Al shamal islamic bank	0.99	0.97	0.93	0.92	0.93	0.99	1
Bank of khartoum	0.96	0.96	0.94	0.95	0.96	0.98	0.98
Average score	0.87	0.86	0.85	0.86	0.86	0.87	0.86

Results achieved by the DEA method show that Islamic banks in the MENA region has remained efficient even after the subprime crisis. The technical efficiency scores recorded values of 0.85 out of the amount of output that could be produced from the quantity of inputs available. Despite the consequences of the subprime crisis, these banks have also maintained their efficiency as well as their stability.

This study allows us to study the evolution of Islamic banks' effectiveness in the MENA region throughout a period of the subprime crisis. Proving their resistance to the crisis, those banks have confirmed to be relatively effective.

CONCLUSION

To conclude, we can say that, based on the methods of CAMEL and DEA, the efficiency and performance of Islamic banks have proven to be not significantly affected by the subprime crisis. This result is mainly due to the adoption of Shariaa board which controls all the operations of its banks and ensures their compliance with its principles. Indeed, these banks do not grant hypothetical loans, avoid risky projects and do not invest in re-packaged devices that lack traceability. This latter was in fact the main reason for the outbreak of the subprime crisis.

Shariaa also prohibits interest as well as securitization, which protects Islamic banks from being doubtful, and encourages banks to grant credits backed by tangible assets.

Similarly, the principle of sharing profit and loss reduces the volatility of returns of these banks' equity, contributes to a better allocation of risk, and strengthens the financing equity.

REFERENCES

Beck, T., Demirguc-Kunt, A., Merrouche, O., (2013). Islamic, efficiency and stability. Journal of banking and finance, 37 (2), pp433-447

Cihak,M., Hesse, H,. (2010). Islamic Banks and financial stability: An empirical analysis. Journal of Financial services Research, vol. 38, isuue 2-3pp 95-113.

Dang, U. (2011). The CAMEL Rating System in Banking Supervision: a Case Study of Arcada University of Applied Sciences. International Journal of Economics and Financial Issues Vol. 3, No. 1, pp.237-252.

El Gamel, M., Inanoglu, H. (2004). Islamic Banking in Turkey: Boon or Bane for the Financial Sector, Proceedings of the Fifth Harvard University Forum on Islamic Finance. Cambridge: Center for Middle Eastern Studies, Harvard University.

El Hawary, D. Grais, W. Iqbal, Z. (2008). Regulation Islamic Financial institutions: The nature of the regulated. World Bank Policy Research Working Paper.

Goldberg, L., Rai, A. (1996). The Structure-Performance Relationship for European Banking. Journal of Banking and Finance, 20, 745-771.

Hasan, M., Dridi, J. (2010). The effects of Global crisis on Islamic and conventional banks: A comparative study. IMF Working paper 10/201.

Iqbal et Mirakhor (2006), Iqbal, Z. et Mirakhor, A., (2007). An Introduction to Islamic Finance Theory and Practice. Singapore: John Wiley & Sons (Asia) Pte Ltd.

Iqbal, M. (2001). Islamic and Conventional Banking in the Nineties: A Comparative Study. Islamic Economic Studies, 8(2), 1-27.

Iqbal, M., et Llewellyn, D.T., (2002). Islamic banking and finance: New perspective on profit sharing and risk. Cheltenham, United Kingdom: Edward Elgar Publishing.

Jill, J., Marwan, I.,Vasileios, P,. (2013). A comparison of performance of Islamic and conventional banks 2004–2009. Journal of Economic Behavior & Organization, in press

Khan, M., Porzio, M., (2009). Islamic Finance and Banking in the European Union: a challenge. Edward Elgar Cheltenham, UK • Northampton, MA, USA

Khawla, B., Mahmoud, S,. (2013). Islamic and conventional banks' soundness during the 2007–2008 financial crisis. Review of Financial Economics, n° 22, 68-77.

Mirakhor, A., (2008). Lesson of the recent crisis for Islamic finance. IIUM Journal of Economics and Management 16 (2), 132 – 138.

Monzer, K. (1982) Saving and Investment Functions in a two- Sector Islamic Economy. International Centre for Research in Islamic Economics, King Abdulaziz University, Jeddah, KSA.

Qureshi, A.I. (1991). Islam & Theory of Interest. Lahore: Muhamad Ashraf

Rashwan, M. H., (2012). How did listed Islamic and Traditional Banks Performed: pre and post the 2008 financial crisis. Journal of Applied Finance and Banking, vol.2, no.2, pp 149-175

Samad, A., Hassan, M. (2001). The performance of Malaysian Islamic Bank During 1984 -1997: An Explanatory Study. Economics, 10 (1&2), 7-26.

Siddiqi, M. (2008). The current financial crisis and Islamic economics. Journal of Economics of Management, 16(2), 125-132.

Standard & Poor's (2012), L'Afrique du Nord prête à l'assaut de la finance islamique, http://www.saphirnews.com/

Syed, A. S., (2007). Financial distress and Bank failure: Lessons From closure from Ihlas Finans in Turkey. Islamic Economic Studies, 14, 1.