Global Financial Crisis (GFC) And Islamic Banks Profitability: Evidence From MENA Countries

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Abstract

This paper investigate the determinant of profitability of Islamic banks from the MENA region and how Global Financial Crisis (GFC) impacts on their performance. The study covers 117 banks for periods of 2003 to 2011. To examine the determinant of Islamic banking profitability (ROA), we apply a balanced and dynamic panel data regression model. We conclude that the profitability of Islamic banks in the MENA countries is determined positively by asset size, equity to total asset, liquidity risk and negatively by capital adequacy ratio, innovation and global financial crisis. Positive and significant of asset size underlines the viability of economies of scale and scope. Foremost, Dummy for crisis is negative and significant indicating Islamic banks are not immune to the crisis. Innovation should be performed with caution, especially on Off-balancesheet activities.

Key Word: Islamic Bank, GFC, Profitability, Innovation, MENA, Panel Data

1. Background

International Monetary Fund (2010) reports that the performance of Islamic banks and conventional banks during the recent financial crisis, and it finds that Islamic banks, on average, showed stronger resilience during the GFC. It also finds that Islamic banks faced larger losses than their conventional peers when the crisis hit the real economy. The effects of the global financial crisis on bank profitability both in Islamic and conventional banks have generated renewed interest since the global crisis. Please note that an Islamic bank, theoretically, is a deposit-taking banking institution whose scope of activities includes all currently known in conventional banking activities. The exception is no borrowing and lending on the basis of interest.

According to Stout (2011) the banking problem in the US arises from the excessive risk taking using credit derivative and other financial innovation. The roots of the 2008 crisis is the failure of the banking industry to anticipate housing market and especially in lenders' decisions to give mortgages to individuals with less credit quality.

Islamic banks as a part of modern financial institutions play key roles in the financial system (FS). According to Iqbal and Molyneux (2005), the first of Islamic banks in the FS is to provide financial intermediation services that accept funds from savers to borrowers. Second, FS provides a wide range of other financial services not immediately related to financial intermediation: payment services, insurance, fund management. FS creates a wide variety of instruments and incentives for an efficient allocation of scarce financial and real resources between competing ends. An efficient allocating resources require an accurate assessment and efficient pricing of risk. Abedifar, Molyneux and Tarazi (2012) state that Islamic bank face different risks compared to conventional one. Bank Islamic face more difficult risk to solve because the relationship between the depositor and the bank is more specific.

Bourkhisa and Nabib (2013) investigate the impact of global financial crisis on Islamic banks. They find that the global financial crisis has induced a series of failure of many conventional banks and led to an increased interest in the Islamic banking business model. Their study applies a matched sample methodology of 34 Islamic banks and 34 conventional banks from 16 countries to find the Z-score as an indicator of bank risk rating. They find that Islamic bank is immune from crisis and imply their ability to retain soundness even during the crisis.

1.1 Objective of the Paper

The objective of the paper is to empirically examine factors that may drive profitability, measured by return on asset (ROA), among a panel of Islamic banks, based on individual banks' annual accounting data over the period 2004-2012. We include innovation in our model to quantify the impact of innovation on Islamic bank performance, especially during the Global Financial Crisis (GFC). It will provide a further evidence on the resiliency of Islamic banking.

2. Literature Review

Risk and return are the core of banking business. In banking, risks arise from the nature of the bank's business as intermediary institution. Risk is defined as possibility of producing bad outcome. The risk arises when there is more than one outcome and the ultimate outcome is unknown or not clear. According to Jorion and Khoury (1996) risk is the variability or volatility of unexpected outcomes.

Banking profitability is an essential part of banking safety as it is guaranteed the going concern principle in the industry. In the regulatory perspective, the profitability is also an essential part of the CAMEL rating where Earning (E) is measuring profitability indicator. The importance of profitability attracted many studies the determinant of bank profitability. Burke (1989) pioneered an international study on the impact of capital adequacy position on the profitability. He shows that the higher the capital ratio is, the more profitable a bank will be. This study was followed by Berger (1995), Anghazo (1997) and Berger and Di Patti (2006) that produced similar results that well-capitalized are more profitable than less capitalized banks.

In European setting, Molyneux and Thornton (1992) also found that the capital ratio impacts banks' performance positively. The most comprehensive study was done by Demirguc-Kunt and Huizinga (1999) covering 80 countries and come to a strong conclusion that more capitalized foreign banks have higher profitability than less capitalized domestic

banks in developing countries. However, for developing countries less capitalized bank are more profitable.

Under economic theory, size is matter meaning bank is more efficient. Larger banks enjoy economies of scale and scope and have better risk diversification opportunities and thus size will lower cost of funding than smaller ones. McAllister and McManus (2008) study the impact of size on the profitability. As a result, larger banks should exhibit relatively higher levels of profitability than smaller one. Molyneux, Altunbas and Gardener (1996) find positive economies of scale for a broader range of size classes for American banks. Similar results were found in Molyneux and Thornton (1992) and Bikker and Hu (2002).

Productivity gains can increase profitability. Hauner and Peiris (2005) using Uganda banking sector found that there is 55% productivity gain from better qualified staffs. That is why under the human resources perspective, the key is personal. Only qualified and well maintained staff will increase bank operating efficiency and profitability in the long run. Eichengreen and Gibson (2001) and Gibson (2005) state that the effect of staff expenses is positive and significant. This finding stresses the fact that qualified staff is important in the service industry. This conclusion implies that banks willing to pay higher salary may enjoy efficiency and higher productivity and imply to higher revenue and less cost on average.

Berger and DI Patti (2006) provide very different views on profitability and capital position. They offered two competing hypotheses with opposite predictions: the efficiency-risk hypothesis and the franchise-value hypothesis. The efficiency-risk hypothesis postulate that the expected high earnings from a greater profit efficiency substitute for equity capital in protecting the firm from the expected costs of bankruptcy or financial distress.

Ben Naceur and Omran (2008) examine the influence of bank regulations, concentration, financial and institutional development on Middle East and North Africa (MENA) countries commercial banks' margin and profitability during the period 1989–2005. They find that bank-specific characteristics, such as capital strength and credit risk, have a positive and significant impact on profitability. Unfortunately, macroeconomic variables are none significant.

Sufian and Habibullah (2009) conducted a study on the determinant of banking profitability in China using both banks-specific data and macroeconomic indicators. Using regression analysis they found that all the determinants variables have statistically significant impact on China bank's profitability. However, the impacts are not uniform across bank types. Bank-specific variables of liquidity, credit risk, and capitalization have positive impacts on the profitability of the state owned commercial banks (SOCB). For the joint stock commercial banks (JSCB), profitability mostly determined by with higher credit risk. For macro economic variable, only economic growth is positive and significant on profitability levels. In terms of regional operation, city commercial banks enjoy lower profitability than SOB that operate across nations.

Athanasogloua, Delis and Brissimisa (2008), use the bank-specific, industry-specific and macroeconomic variable, to study the determinants of bank profitability in Greece. The study basically tried to apply the industrial economic framework known as structure-conduct-performance (SCP) hypothesis. They apply GMM technique for data from 1985–2001. The result shows that market structure is not so strong as indicated by a moderate extent profitability.

Sheng-Hung Chen and Chien-Chang Liao (2009) show that there is significant and negatively related to foreign bank's ROA and Control of Corruption in 16 Asian Countries.

Foreign banks increase their ROA with narrowing their host-home gaps in Regulatory Quality and Control of Corruption. The finding supports the joint effects of host-home differences in institutional governance. The empirical results reveal that foreign banks show better profitable than domestic banks.

Hasan and Bashir (2003) find that Islamic banks' profitability measures respond positively to the increases in capital and negatively to loan ratios.   The results revealed that larger equity to total asset ratio leads to more profit margins. It indicates that adequate capital ratios play a weak empirical role in explaining the performance of Islamic banks. The Islamic banks' loan portfolio is heavily biased towards short-term trade financing. Haroon (2004) classifies the sources of bank profitability into two sources. Internal factors such as liquidity, total expenditures, funds invested in Islamic securities, and the percentage of the profit-sharing ratio between the bank and the borrower of funds and external factors such as interest rates, market share and size of the bank. These external factors are positive to Islamic bank profitability.

Mongid and Tahir (2011) explores the key factors influencing bank profitability using 475 banks operating in six ASEAN countries. They found that banking profitability is related to internal bank and governance environments. On internal factors, a higher ratio of personnel expense ratio, capital positively increase bank profitability and are negatively associated with higher regulatory capital ratio, net loan and cost efficiency. Economic growth is positive, but not significant. Surprisingly, the corruption index is positive and significant to profitability which underlines the ability of banking firms to enjoy the benefits in a bad governance environment.

Sufian and Noor (2009) suggest that the MENA Islamic banks have exhibited higher mean technical efficiency relative to their Asian Islamic bank counterparts. Mashood and Ashraf (2012) using Islamic bank in Pakistan found that banks with larger asset size and with efficient management lead to a greater return on assets. Study by Hasan and Dridi (2011) concluded that Islamic Banks performed better than conventional banks during the GFC. However, weakness in risk management Islamic Bank (IBs) make their performance lower than their potential. The better performance before GFC are as a result of better diversification, economies of scale, and stronger reputation might have contributed to this better performance. Tan and Floros (2012) find that there is a positive relationship between bank profitability, cost efficiency, banking sector development, stock market development and inflation in China. The authors report that low profitability can be explained by higher volumes of non-traditional activity and higher taxation.

The second annual ISRA-IRTI-Durham Strategic Roundtable Discussion (2012) concludes that to avoid crisis experienced by conventional banking, that the Shari'ah emphasizes risk sharing must be a salient characteristic of Islamic financial transactions. Risk transfer and risk shifting in exchange contracts must be avoided as it violates the Shari'ah principle that liability is inseparable from the right to profit. Sales must be genuine transactions in open markets. Although the Shari'ah recognizes the permissibility of debt, it is acknowledged that excessive debt has detrimental effects on society.

3. Methodology

3.1 Research Framework

Evaluating bank performance is a complex process that involves assessing interaction between the environment, internal bank condition and external activities. Profitability

ratios are usually used to assess the performance of financial intermediaries. The primary method of evaluating internal performance is by analysing accounting data. Financial ratios usually provide a broader understanding of the bank's financial condition since they are constructed from accounting data contained on the bank's balance sheet and financial statement.

The study investigates micro or bank level aspects that influence the profitability of the Islamic banking firm. We aware that banking firm is very specific in nature. This study is to find a link between bank-specific factors and the economic environment. We expect that the findings can be useful for academic knowledge and policy assessment. The framework basically replicates the work previously done by Mongid and Tahir (2011) and Hanif, Tariq, Tahir and Momeneen (2012). In this study, we employ dynamic panel data model.
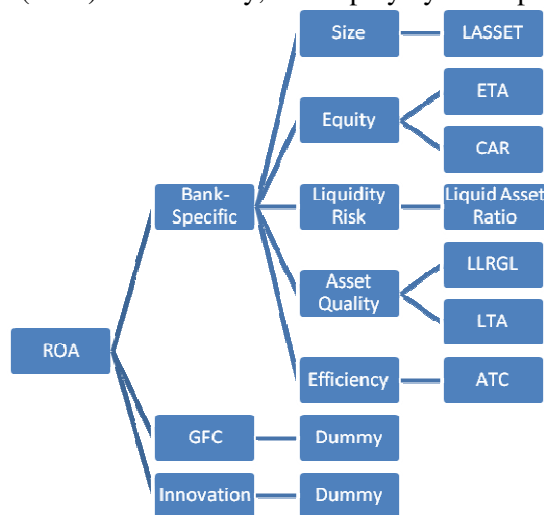
Figure 1. Framework of Analysis

3.2 Model

To examine the determinant of Islamic banking profitability (ROA, we use dynamic panel data regression model. In the dynamic pane regression (DPR), there are two dimensions concept and can be written as:

$$X_{it}, \ i = 1, \ldots, N \ t = 1, \ldots, T,$$

(1)

Where i is the individual dimension and t is the time dimension. Individual dimension is the vector of X and time is the period of the observation. In general dynamic panel data regression model is written as:

$$y_{it} = \alpha + \beta' X_{it} + u_{it}.$$

(2)

The reasons to use the DPR are time dimension is smaller (9) than sample banks (13) and linear function is influenced by past realisation of the predictors. We apply

the balanced panel data technique to control for data variability that cannot be observed or measure like cultural factors or difference in business practices across companies. Panel data also allow us to take into accounts for individual heterogeneity. In the estimation, there are two model possibilities known as fixed effects model and the random-effects model. Fixed-effect assumed that the model and variable value is measured without error. Random-effect is assumed that there is error in measurement.

There are several ratios that are typically used to measure the profitability of firms. The two most often used are the rate of return on assets (ROA) and the rate of return on equity (ROE). The use of the ratio depends on the purpose of the study. For investors, study mostly prefers ROE. For economist and regulators, ROA is preferred as it provides more meaning in term of resource allocation. In this study, we focus on ROA.

The model for this study can be formulated as follows:
$$ROA_{it} = \alpha + \beta1\ SIZE_{it} + \beta2\ ETA_{it}\ + \beta3\ CAR_{it} + \beta4\ LIQRISK_{it} + \beta5\ LTA_{it} + \beta6\ ATC_{it} + \beta7\ LLRGL_{it} + \beta8\ GFC_{it} + \beta9\ DINOVA_{it} + \beta10\ GFCINOVA_{it}$$

To assess the ability of the model to explain the profitability (ROA), we use panel regression testing techniques such as t-tests and F-test. F-test is used to test the capability of the model to explain the variability of the ROA. To assess the capacity of the individual variable, we use t-test. Before that, testing the fixed-effect or random-effect will be performed using the Hausman test. Hausman test is applied to differentiate between fixed effects model and random-effects model in panel data. Our test is based on STATA that treats random-effects (RE) are preferred under the null hypothesis due to higher efficiency, while under the alternative hypothesis, fixed effects (FE) is at least consistent and thus preferred. The test is based on Chi-Squared distribution.

3.3 Variables
Variables employ in this study are derived from theoretical as well as previous empirical studies. These variables are presented in Table 1

Table 1. Variables, Definition and Sources of Data

No	Variable	Definition	Sources
1	LASSET	Log Total Asset	BS
2	ETA	Equity /Total Asset	BS
3	CAR	Equity (Tier 1+Tier 2) /Risk Weighted Asset	BS/IS
4	LIQRISK	Liquid asset / Customers' funds	BS
5	LTA	Loan to total asset	BS
6	ATC	Total expenses / total asset	BS/IS
7	LLRGL	Loan Loss Reserves / Total Loan	BS/IS
8	GFC	Dummy Global Financial Crisis (2008-2012)	
9	DINOVA	Dummy Innovation: 1 If a bank owns commitment and contingent products	OBS
10	GFCINOVA	Dummy GFC X INOVA	OBS

BS= Balancesheet, IS =Income Statement, OBS= Off-Balancesheet

ETA is total Equity (E) divided by Total Assets (TA) indicate capital adequacy of Islamic banks. The higher ratio indicates the general safety and soundness of the financial institution. Equity can improve bank safety as it can absorb losses, improve reputation in the market and satisfy regulator requirement. Bank with a higher capital ratio are expected to have higher profitability.

CAR is capital adequacy ratio to indicate the ability of the banking firm to provide a cover against risky asset. It is measured by dividing the equity (Tier 1 and Tier 2) by total risk right asset. Minimum capital (CAR) set by Basel Committee is 8%. CAR offers a good measure of the degree of loss a bank can absorb. Capitalization ratios can be thought of as proxies for a bank's margin of error in doing business. Nowadays, capital ratios also play a larger role in determining whether regulators will allow on performing acquisitions and dividend payments. Higher CAR may have positive as well as negative impact on profitability.

Total Loans (L) to Total Assets (TA) indicate the composition of bank's asset. LTA provides indicator how much loan disbursed compared to total asset. A higher ratio is assumed better as the loan provides higher income compared to other investments. Loans are the largest segment of productive assets and are expected to have a positive relationship with bank profitability. Other things being constant, the more the deposits that are transformed into loans, the higher the level of profit will be. However, banks should have the capability to manage their loan portfolio as the loan is very risky. In general, higher LTA has a positive impact on bank profitability. Ideally, share of PLS financing should be used. However, the data is not available.

The ratio of liquid asset to customer funds (Liquidity) can be positive or negative to profitability. Banks are legally required by the regulating agencies to keep a minimum amount of liquidity. The aim is to guarantee the availability of liquid funds in case of depositors withdraw their money. These regulations are known as 'legal reserve requirements'. The ratio of legal reserves varies from country to country range from 5% to 12%. Bashir (2001) argues that apart from legal reserve requirements, Islamic banks have large amounts of short-term idle balances which earn no return. This cash or liquid asset holding may have two possible impacts on the profitability. As it is no return, higher liquid ratio has a negative impact. In other side, when a bank has enough liquid assets, the public has a higher trust to save their fund in the bank. If this happened, higher liquid ration increase profitability.

Loan loss Reserves (LLR) to gross loan (GL) are a measure of credit risk. The ratio of loan loss provisions to total gross loans (LLRGL) is usually used as a proxy variable to measure credit risk. The higher ratio indicates bank experiencing higher loan default, and to compensate it, banks must put aside reserves to cover the risk of default. It means this ratio is the risk of financial loss due to the borrower's failure to perform repayment. Please note that credit risk can also arise from treasury operation such as Sukuk investment. Therefore, the relationship between credit risk and bank profit is expected to be negative.

ATC is measured using total expenses divided by total asset. It explains how much expense, bank incurred to every asset owned. The higher ATC ratio indicates that bank spends more for every asset being held. In economics, ATC indicates inefficiency score where a lower value means higher efficiency. ATC should have a negative impact on profitability.

GFC is dummy for global financial crisis. Before 2008 is zero and after 2008 is 1. This variable dummy is very important to test if there is an impact of the GFC on profitability. We expect that GFC will have a negative impact on bank profitability.

DINOVA is dummy variable for innovation. Innovation is defined by the existence of the guarantee and acceptance in the bank's report (Nachane and Ghosh:2007). Bank that reports guarantee or acceptance is categorized as innovative bank and be given the value 1. Otherwise is 0. As GFC is characterized as financial crisis, we expect that innovative bank will experience a negative impact on its profitability.

GFCINOVA is interaction between DGF and DINOVA. It is to capture if innovative banks will experience a worse impact than non-innovative bank. This variable capture impact of global financial crisis on innovative bank. As DINNOVA and GFC are negative, we expect the sign is negative.

3.4. Hypothesis

In this study, we use time series and cross sectional model mostly known as panel data. Panel data models combine a cross-section component (many banks observed at one point in time) with a time dimension (the same banks observed over different years). The cross-section nature of the panel controls for bank-specific factors and how these vary across banks. The addition of a time dimension in the panel allows other external factors such as economic growth and other macroeconomic situation potentially to impact on bank profitability.

The main hypothesis to be tested is that that ROA relates to bank-specific characteristics such as size (+/-), capital (+), inefficiency (-), asset composition (+) and loan provisions (-). For environment variables we expect GFC (-) and innovation (+/-).

4.4 Sample Distribution

The study covers Islamic bank from the MENA from 2003 to 2011. Only bank that has financial report spanned from 2003 to 2011 are used. These countries are Arab Emirate (3 banks), Bahrain (1 bank), Egypt (1 bank), Jordan (2), Kuwait (1), Qatar (2), Saudi Arabia (2) and Sudan (1). Total samples are 13 Islamic banks during 2003 to 2011 that make the total observation 117.

5. Empirical Results

5.1 Data Description

In this study, the samples are Islamic Bank with complete financial report from 2003 to 2011. Available observation is more than 500 samples at the beginning, but after considering the completeness, we only get 117 observations. This decision is made as we try to model fully dynamic balanced panel data. There are three banks from Arab Emirate, two is from Jordan, Qatar and Saudi Arabia. The rest is one bank. The study uses accounting-based performance measures defined as return on assets (ROA). Data is obtained from the BankScope database for all Islamic banks that operated in the countries of interest between 2003 and 2011.

ROA has 117 observations with mean value 2.6% and Standard Deviation (SD) 2,2. The coefficient variation (CV), measured by SD/Mean is 79%. It means the standard deviation is less than its mean value. The logarithm of total asset (LASSET) is variable to measure

impact of size on profitability. Them mean of asset is 14.944 minimum value 11.62 and maximum 17,89. The coefficient variation is 10%.

We apply two variables related to capital. ETA is equity to total asset and it indicates how strong is the bank equity position. The higher ratio indicates that bank own stronger capital. ETA in this study is 16.54 meaning from 100% asset, it is supported by 16.54% equity. On average six time leverage. For capital adequacy ratio (CAR), only 81 observations are available from 117 observations. The mean value is 27.16 with minimum 11.1 and maximum 173. It means all observations is strongly capitalized bank as all ratios is more than 8%. Both capital ratios are lower than one in the value of coefficient variable.

Liquidity is a very important risk, especially during global financial crisis. It is measured by using total liquid asset divided by the total customer's fund. The mean is 47% with a standard deviation around 68.61%. It is very interesting to see how Islamic bank maintains its liquidity risk. The minimum liquidity available is 6.8% and maximum is 660% of its customer short-term fund. The figure confirmed the weakness of liquidity management of Islamic banks. A previous study by De Jong, Kabir and Nguyen (2008) support that liquidity is very specific for banking firm, industry as well as country.

Loan to total asset (LTA) is used to measure whether an Islamic bank is playing more on intermediation institution or just an investment banking. On average the ratio is 58%, meaning that 58% of bank asset consist of loan and the rest are non-loan, such as fixed asset, cash, investment in securities and etc. The distribution is less dispersed as the coefficient variation (CV) is around 36% of its mean value. Interesting point of LTA is it increases during global financial crisis. It indicates that Islamic bank is relatively immune from the banking crisis. After investigating the asset size, it is clear that asset grew significantly confirming that Islamic banking in the MENA are performing better during global crisis.

ATC is used to measure how efficient is an Islamic bank from time to time. The average is 4%, meaning that the average cost to perform the Islamic banking service is around 4% of its asset size. The standard deviation is around 1.7%. The minimum is around 1.7% and the maximum is 8.5%. It is clear here that cost efficiency is widespread. However the variation is very low as it is only 43%. It means the variation is 34% of its mean. The interesting point is during the global financial crisis, the efficiency of Islamic bank decreased, indicating the cost pressure during global financial crisis.

Loan loss reserve for a total loan (LLRGL) is a measure of credit risk. A higher ratio is indicating that there is a credit risk problem in the bank. However, this ratio is not purely credit risk because there is managerial intervention that may influence the ratio. The man is 5.19%, meaning that the Islamic bank under investigation are putting aside 5.2% of its income as loan loss provision. Maximum is around 45%, meaning the risk is very high. The distribution is also very widespread. The coefficient of variation (CV) is around 140%. There is an interesting situation on the LLRGL. It is lower during global crisis in 2008-2009 and increasing to 5.4 over that period. It supports the argument that during the early crisis, Islamic banks are immune but after the crisis hits all sectors, the condition is different.

Under Ordinary Least Square (OLS) regression, the data should be normally distributed. However, after investigating the data, we find that the data is not normally distributed. It is the nature of financial data as it it is a picture of real data in the market. Wooldridge (2012) mentioned that non-normality is common for financial data and should not prevent for

further analysis. The most important thing is error must be normally distributed. In this test, we apply Shapiro-Wilk Test for normality.

We estimate the model using Generalised Least Square (GLS) as it can accommodate collinearity among predictors (Greene: 2012). Before estimating the determinant of the ROA using panel regression, we test if the model should follow a random-effect (RE) or fixed-effect (FE). In this study, we follow Kalita (2013). To test which approach is appropriate, we use a Hausman test. By definition, the Hausman test is to test whether random-effects estimation would be almost as good. In a fixed effects case, the Hausman test is a test of H0: that random-effects would be consistent and efficient, versus H1: that random-effects would be inconsistent. In this case, we always assume that the fixed effects model is certainly consistent. From panel regression, we set a fixed - effect model and then random-effect one to see which is better. Our test shows that   chi2 (9) = (b-B)'[(V_b-V_B) ^ (-1)] (b-B) is 15.46 with probability 8%. It means the appropriate model is random-effect. Further estimation is based on random-effect model.

5.4 The Model

In this study estimation is carried out using STATA version 10 Student Ediiton. There are 117 observations and 13 individual samples for period 203 ton 2011 are used in this study. The estimation is carried out using Random-effect Generalized Least Square (GLS). Total samples used in the model are 77 observations with 12 banks as a group. Overall R-squared is 67%, meaning that on average the model can explain 67% of the profit variance. The Wald test indicates that it is significant at 1%. The result confirms that the random-effect model is eligible for further analysis. See Table 2 for details.

Table 2. Estimation Result Based on Random-Effect

ROAA	Coef.	Std. Err.	Z	P>z
LASSET	0.699	0.193	3.610	0.00
ETA	0.228	0.036	6.250	0.00
CAR	-0.103	0.027	-3.860	0.00
LIQUIDITY RISK	0.008	0.003	2.690	0.01
LTA	-0.546	1.280	-0.430	0.67
ATC	-6.468	14.224	-0.450	0.65
LLRGL	0.029	0.029	1.000	0.32
GFC	-2.027	0.654	-3.100	0.00
Dinova	-1.828	0.591	-3.090	0.00
GFCINOVA	0.886	0.861	1.030	0.30
cons	-7.597	3.051	-2.490	0.01

Sources: Stata Output

Variable asset size (LASSET) is positive and significant at 1%. It means that any 1% increase in asset size, bank will enjoy 0.7% is profitability ratio. The result indicates the validity of economies of scale theory. Under economies scale theory, big banks are more efficient and enjoy benefits from size and scope. The finding suggests that the bank size is the most important factor in explaining the variation of profitability for Islamic banking firms. It means as larger bank size will fundamentally have better access to capital markets, lower is reasonable big bank enjoy lower cost of borrowing.

ETA is the capital strength indicator. A bank that has a higher ETA ratio means it has stronger capital. The coefficient is 0.23 meaning that any increase by 1% of ETA, the bank will enjoy increased by 0.23%. ETA is significant at 1%. Another capital strength indicator is CAR. CAR is measured using different approaches. It is basically regulatory capitalistic. It is measured using eligible capital divided by risk weighted asset. Based on international agreement, minimum CAR is 8%. The sign is a negative meaning higher ratio reduces profitability. Any increase 1% IN car, bank will experience 0.01%. The variable is significant at 1%.

Banks with a stronger capital position are more profitable and it supports the hypothesis that stronger capital is very important to earn higher profitability. Bank with stronger capital means it can own more opportunities to gain benefit, especially when having to make a decision on investment. Stronger capital means more rooms to invest and take risks on various opportunities, especially on information technologies and human resources.

Stronger capital also means that banks are more focusing on strategic and innovative way of doing business than banks with less capital. Bank with less capital is focused on its daily activities to manage capital and becoming more focusing on avoiding regulatory action. Its support the fact that innovation and IT's are more important to earn profitable. A recent study by Brogi and Langone (2016) Bank's capital adequacy is the key driver of a resilient banking system that is capable of absorbing shocks. Capital adequacy is important determinant of bank profitability in the MENA region. Empirical analysis results show that the profitability varies between Islamic and conventional banks. Profitability seems to be quite persistent indicating a higher degree of government intervention.

In opposite to the ETA, capital adequacy ratio (CAR) is negative to profitability. There are two explanations on this issue. The first is related to risk-taking. When banks take less risk-taking, its CAR will be higher as the denominator is lower. As risk-taking is very important for profitability, bank with lower risk-taking enjoys less profitability. It means, although bank owns less capital, it may have a higher CAR than a bank owns high capital but takes more risk.

The second explanation is on the behaviour related to moral hazard theory. Under the moral hazard theory, the banks that own less capital take more risk to compensate the demand for higher profitability. Under the framework, banks that own less capital is more tempted to take more risk because when the potential profit is realized, they will enjoy all the profit. Owner, board of directors as well as a bank's staff will enjoy this profit. However, when higher risk-taking is producing burst result, the cost will be paid by deposit insurance. This hypothesis is valid as all the MENA countries under investigation are already installing a deposit insurance scheme.

The coefficient for liquidity is 0.008 meaning if bank liquidity increase by 1%, the bank will enjoy 0.008% higher profit. The liquidity is significant at 1%. It is basically opposite to the liquidity theory were less liquid bank may have more opportunity to invest their funds on more profitable loan. Positive sign means more liquid banks are more profitable. Ismal (2010) provided explanation of this situation. Shariah issues that arise in the management of liquidity risk discovered that Islamic banking needs to develop its liquidity risk management practice to make it more competitive compared to conventional banking. Chung-, Lan and Chuan (2009) concluded that liquidity risk is a determinant of a bank's internal performance.

How, Karim and Verhoeven (2004) conclude that commercial banks offering Islamic financing will experience significant liquidity risk because the market for liquidity is not well developed and it is too expensive to hold more liquid asset. Beltratti and Stulz (2010) found that liquidity has positive and significant relation with profitability as banks with more liquid assets tend to perform better. In Islamic banks, a study by Amba and Almukharreq (2013) shows that both Islamic and conventional banking are sensitive to liquidity risk especially during global financial crisis.

The coefficient for LTA is -0.55 but not significant. We expect that it is positive and significant as more loan is more profitable. A previous study by Hassan and Bashir (2005) support the finding. They find that Islamic banks' profitability respond positively to the increases in capital and negatively to loan ratios.   Why loan is negative because the Islamic banks' loan portfolio is heavily biased towards short-term trade financing that earn less income although it is less risky.

The coefficient for ATC ratio is –6.47 and not significant. Negative is rational because it is cost and should have a negative impact on profitability. The lesson from this result is the profitability is not merely related to cost but also revenue. A study by Bader, Muhammad Hasan and Ariff (2008) support the finding that cost efficiency is not always in line to profit efficiency.

The coefficient for LLRGL is 0.03 and it is not significant. The relationship is negative, but not significant, indicating that the loan loss provision is not merely market or regulatory based measure but also influenced by managerial consideration. Although banks are required to disclose loan loss provision, in practice, managerial consideration to put aside is different. In addition, an increase in loan loss provision would also increase the loan loss reserve that is considered as profit reduction. Managerial judgement is possible. In addition, bank managers have private information regarding the default risk related to their portfolio. This make loan loss provision is not totally reflecting credit risk.

Dummy for GFC is negative and significant, indicating that GFC gives negative impacts on banking profitability. The finding is in opposite to Hasan and Dridi (2011) that the performance of Islamic banks is immune to global financial crisis. Factors specific to Islamic banks have helped them to limit the impact of the crisis on profitability, while poor risk management practices among Islamic banks had adversely affected. Proponents of Islamic banking and finance industry have suggested that it is a remedy for the global economy. Caution should be noted as our result shows that Islamic bank is not immune from the crisis. Rosly and Abu Bakar (2003) investigate the nature of the lending between the Islamic banks and conventional banks. They found that Islamic Bank has no advantage over the conventional banks in Malaysia. In general, there is a tendency that profitability among samples decrease continuously.

Dummy for innovation is negative and significant at 1%. It means innovative banks are not always more profitable. The Islamic banking sector is under increasing pressure, especially from a conventional one. That competition pressure requires Islamic banks to innovate. To stay competitive, banks are required to develop and deliver new products. This finding is in opposite to this hypothesis as innovative bank is less profitable. There is a possible explanation why this happens. Innovative banks are less profitable because they spend more for investment. It makes them less profitable as the benefit of innovation is not there. It may result less profit at this time, but it will enjoy higher profit in the future.

Negative sign may come from the unsuitability of innovation. Banks are innovating, but it is not their customer needs. Jaroudi (2008) from Elaf Bank reminds Islamic bank not too ambitious in innovation. He noted that there is a tendency among Islamic banks to copy innovation and try to fit it in their own organization. This practice is regarded as a very dangerous and can backfire the banks. Further, Jaroudi mentioned too much innovation can destroy the competitive advantage because people can handle so much at one time. Dummy for interaction between GFC and Innovation is not significant, indicating that innovative or non innovative banks experience the same situation during the GFC.

6.   Conclusion and Implication

From the discussion above, we can draw some conclusion about the relationship between banking characteristics and profitability performance in Islamic banks. We can conclude that the profitability of Islamic banks in the MENA countries is determined positively by asset size, equity to total asset, liquidity risk and negatively by capital adequacy ratio, innovation and global financial crisis. Positive and significant of asset size, underline the viability of economies of scale and scope. Not well developed Islamic money market make the liquidity position a hinder to profitability. The finding also indicates that regulatory capital ratios play negative role in explaining the profitability of Islamic banks. Regulatory capital is merely serving an artificial function in Islamic bank and does not always reflecting the strength of bank capital. Another important conclusion is that the financial crisis had a negative impact on profitability of selected Islamic banks from the MENA region.

The finding implied that Islamic bank is not always immune to the economic crisis, especially when the business model is not Islamic. Further, the innovation should be suitable to Islamic principles as previously stated by Ahmed (2009).

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