The Nexus between Economic Freedom and Islamic Bank Performance: Empirical Evidence from the MENA Banking Sectors[1]

Fadzlan Sufian[2]
Muhamed Zulkhibri Abdul Majid[3]

The present study provides new empirical evidence on the impact of economic freedom on Islamic banks' performance. The empirical analysis focuses on Islamic banks operating in the MENA banking sectors during the period 2000-2008. We find that the larger, more diversified, and better capitalized Islamic banks tend to be relatively more profitable, while credit risk and expense preference behaviour seem to exert negative impact. The findings suggest that greater financial freedom positively influence the profitability of Islamic banks operating in the MENA banking sectors. Interestingly, the impact of monetary freedom is negative implying that higher (lower) monetary policy independence reduces (increases) Islamic banks' profitability, providing support to the benefits of government interventions.

JEL Classification: G21; G28
Keywords: Economic Freedom, Islamic Banks, Profitability, Panel Regression Analysis, MENA

1.0 INTRODUCTION

Islamic banking is a relatively recent addition to the global financial markets. Its conventional brick and mortar root can be traced back to the early 1960s when Myt Ghamar Bank was formed in Egypt in 1963. Between 1963 and 1971 the bank provided Muslims with a place to deposit their savings in accordance to the *Syari'a* principles[4]. Despite its humble beginning, Islamic banks have blossomed throughout the world and are looked upon as a viable alternative system which has many things to offer.

Although it was initially developed to fulfill the needs of Muslims, Islamic banking has now gained universal acceptance. According to El-Qorchi (2005), the number of Islamic financial institutions increased from a single institution in 1975 to approximately 486 financial institutions operating in more than 75 countries worldwide[5]. Total assets of Islamic financial institutions are estimated at US$250 billion and are tipped to be growing at 15% per year, three times the rate of conventional banks. The rapid growth rate confirms the growing importance of Islamic banking and finance in the global financial markets.

1 All findings, interpretations, and conclusions are solely of the authors' opinion and do not necessarily represent the views of the institutions.

2 Universiti Islam Antarabangsa Malaysia.

3 Economic Research and Policy Dept., Islamic Development Bank. Mailing address: 9th Floor, Economic Research and Policy Department, Islamic Development Bank, P.O Box 5925, Jeddah, 21432, Saudi Arabia, e-mails:mzulkhibri@isdb.org; khibri1974@yahoo.com, Tel: +966-2-646-6533; Fax: +966-2-506047132

4 The basic tenets and principles of Islamic banking are built upon the avoidance of usury (*riba*') and the prohibition of impermissible activities as clearly mentioned in the Quran, the Islam's holy book and the traditions of Prophet Muhammad (*sunnah*): "Believers! Do not consume *riba'*, doubling and redoubling…" (3.130); "God has made buying and selling lawful and *riba'* unlawful…" (2:274).

5 The estimates of the number of Islamic financial institutions vary considerably between institutions. For instance, the International Monetary Fund (IMF) estimate that the number of Islamic financial institutions has increased to more than 300, while the Association of Islamic Banking Institutions Malaysia (AIBIM) suggests that there are around 486 Islamic financial institutions around the world.

The Islamic banks operate in markets characterized by competition-inhibiting government regulation and in a protected banking environment. Islamic banking, being a participatory type of banking system, has entered on the global banking market in full force. In recent years, market conditions in Islamic banking have undergone extensive changes from both the demand and supply sides. On the demand side, customers have become more sophisticated, value-oriented, and price sensitive, while on the supply side, the globalization of financial markets has been accompanied by governmental deregulation, financial innovation, and automation.

These two factors have resulted in an increase in the number of competitors, cost reductions, and profit declines. The revolution in information technology, mainly in internet banking has enabled the larger financial institutions to penetrate markets and to increase their market share within both national and overseas markets by providing competitive products at lower prices. Furthermore, Islamic equity-type financial instruments are competing with conventional banking products and now face strong competition from both banks and non-bank financial institutions. This also accentuates competition within the financial services industry.

It is reasonable to assume that these developments posed great challenges to Islamic banks as the environment in which they operates in has changed rapidly. This could sensibly have an impact on the determinants of their performance. Despite considerable development of the Islamic banking sector, empirical works on Islamic banks' performance is still in its infancy. The knowledge of the underlying factors which influences the Islamic banking sector's performance is essential given the growing importance of Islamic banking and finance in the global financial markets. It is therefore essential not only for the managers of the Islamic banks, but for numerous stakeholders such as the central banks, bankers associations, governments, and other financial authorities to help them identify and formulate policies to improve the performance of the Islamic banking sector, particularly in the MENA region[6].

On the perspective of economic freedom, economic theories suggest that economic freedom tend to affect incentives, productive effort, and the effectiveness of resource use.[7] Economists and economic historians have argued that since the time of Adam Smith, central ingredients for economic progress are the freedom to choose and supply resources, competition in business, trade with others, and secure property rights (North and Thomas, 1973). Within the context of the MENA region, it can be observed from Table 1 that the region has achieved modest improvement in economic freedom during the year 2010[8]. It can be seen from Table 1 that Bahrain retained the top ranking within the region and managed to be ranked in the world Top 10, while Qatar ranks in the world top 30.

The ongoing transformations of innovative and reform-oriented states such as Bahrain, Qatar, Kuwait, and Oman may pave the way for a more robust and dynamic regional economic growth in the region. On different scale, Jordan and Oman registered the highest gains in economic freedom and Qatar's improvement to 70.5, moved it from the category of "moderately free" to "mostly free", while Syria's improvement lifted its designation from "repressed" economy to "mostly unfree". However, no other MENA countries are rated as having "mostly free" economies. Nearly half of the region falls into the "mostly unfree"

6 MENA stands for Middle East and North Africa region comprises of Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Sudan, Tunisia, UAE, and Yemen.

7 Islam has laid down some principles and prescribed certain limits for the economic activity of man so that the entire pattern of production, exchange, and distribution of wealth may conform to the Islamic standard of justice and equity.

8 The Economic Freedom Index is released by The Heritage Foundation and The Wall Street Journal.

category and two countries, namely Libya and Iran, ranked among the world's most repressed economies. The institutional problems, such as lack of investment and financial freedom and weak systems for protecting property rights and preventing corruptions continue to degrade the region's overall economic freedom and economic potential.

[Insert Table 1 about here]

The purpose of the present paper is to extend the earlier works on the performance of the Islamic banking sector in the MENA region and to establish empirical evidence on the impact of economic freedom. The paper also investigates to what extent the performance of Islamic banks is influenced by internal factors (i.e. bank-specific characteristics) and to what extent by external factors (i.e. macroeconomic conditions and economic freedom). Although studies on economic freedom is vast in the literature (e.g. Heckelman and Knack, 2009; Altman, 2008; Powell, 2003; Adkins et al. 2002; De Haan and Sturm, 2000; Heckelman and Stroup, 2000; Heckelman, 2000; De Haan and Siermann, 1998), these studies have mainly examined the impact of economic freedom on economic growth. On the other hand, virtually nothing has been published to examine the impact of economic freedom on the performance of the conventional or Islamic banking sectors. This limitation is somewhat surprising given the importance of bank lending in promoting economic growth and development (e.g. Ben Naceur and Ghazouani, 2007; Beck and Levine, 2004; Rajan and Zingales, 1998) and given the impact that economic freedom is likely to have on the banking sector.

The paper is divided into five sections. The following section presents the literature review. Section 3 describes the data, sources, and empirical settings. In section 4 we present the results and finally, section 5 concludes.

2.0 REVIEW OF THE LITERATURE

The empirical evidence on the performance of the conventional banking sectors is extensive. To date, the numerous studies have mainly focused on the U.S. banking sector (e.g. DeYoung and Rice, 2004; Stiroh and Rumble, 2006; Hirtle and Stiroh, 2007; Tregenna, 2009) and the banking sectors of the western and developed countries (e.g. Williams, 2003; Pasiouras and Kosmidou, 2007; Kosmidou *et al*. 2007; Hawtrey and Liang, 2008; Kosmidou, 2008; Kosmidou and Zopounidis, 2008; Athanasoglou *et al*. 2008; Albertazzi and Gambacorta, 2008; Kasman *et al*. 2010). On the other hand, empirical works on the Islamic banking sector is still in its infancy. Typically, studies on Islamic bank performance have focused on theoretical issues and the empirical works have relied mainly on the analysis of descriptive statistics rather than rigorous statistical estimation (El-Gamal and Inanoglu, 2005).

Hussein (2003) provides an analysis of the cost efficiency features of Islamic banks in Sudan. By using the stochastic cost frontier approach, he estimates cost efficiency for a sample of 17 banks over the period 1990 and 2000. The results show large variations in the cost efficiency of Sudanese banks with the foreign owned banks being the most efficient, while the state owned banks being the most cost inefficient. The empirical findings suggest that the small banks are relatively more efficient compared to their large bank counterparts. In addition, banks with a higher proportion of *musharakah* and *mudharabah* finance relative to total assets tend to exhibit efficiency advantages.

In another study on the Sudanese Islamic banking sector, Hassan and Hussein (2003) examine the efficiency of the Sudanese banking system during the period of 1992 and 2000. They employed a variety of parametric (cost and profit efficiencies) and non-parametric Data Envelopment Analysis (DEA) methods to a panel of 17 Sudanese banks. They found that the

average cost and profit efficiencies under the parametric method were 55% and 50% respectively, while it was 23% under the non-parametric method. During the period under study, they suggest that the Sudanese banking system has exhibited 37% allocative efficiency and 60% technical efficiency, suggesting that the overall cost inefficiency of the Sudanese Islamic banks were mainly due to technical (managerially related) rather than allocative (regulatory).

El-Gamal and Inanoglu (2004) employ the stochastic frontier approach to estimate the cost efficiency of Turkish banks over the period 1990-2000. The study compared the cost efficiencies of 49 conventional banks with four Islamic special finance houses (SFHs). The Islamic firms comprised around 3% of the Turkish banking market. Overall, they suggest that the Islamic financial institutions to be the most efficient. This could be explained by their emphasis on Islamic asset-based financing which led to low non-performing loans ratios.

The study by Hassan (2006) is among the few performed to examine the efficiency of Islamic banks in a cross-country setting. He employs both the parametric (Stochastic Frontier Approach) and non-parametric (Data Envelopment Analysis) methods to examine the efficiency of banks in the sample. The findings indicate that during the period 1993-2001, Islamic banks have exhibited a relatively higher profit efficiency compared to cost efficiency. He suggests that the main source of inefficiency is allocative rather than technical. The results indicate that the overall inefficiency was output related. The results indicate that on average the Islamic banking industry is relatively less efficient compared to their conventional counterparts.

While the above outlines the literature that employs advanced modelling techniques to evaluate Islamic banks' performance, one should also note that there is a growing body of literature that covers the general performance features of Islamic banks. Such studies include those by Hassan and Bashir (2003) who look at the determinants of Islamic banks' performance and show that Islamic banks to be just as efficient as their conventional bank peers if one uses standard accounting measures such as the cost-to-income ratio. Other studies that followed similar approach are those by Sarker (1999) who examines the performance and operational efficiency of Bangladeshi Islamic banks, while Bashir (1999) investigates the risk and profitability of two Sudanese banks.

Bashir (1999) and Bashir (2001) performed regression analyses to examine the underlying determinants of Islamic banks' performance. By employing bank level data from the Middle East, the results indicate that the performance of banks, in terms of profits, is mostly generated from overhead, customer short-term funding, and non-interest earning assets. Furthermore, Bashir (2001) claimed that since deposits in Islamic banks are treated as shares, reserves held by banks propagate negative impacts such as reducing the amount of funds available for investment. In essence, the findings from this literature are that Islamic banks are at least as efficient as their conventional bank counterparts and in most cases are relatively more efficient.

The above literature reveals the following research gaps. First, the majority of these studies have concentrated on the conventional banking sectors and the banking sectors of the western and developed countries. Second, empirical evidence on the developing countries banking sectors, particularly the Islamic banking sectors are relatively scarce. Finally, virtually nothing has been published to examine the impact of economic freedom on the Islamic banking sector. In light of these knowledge gaps, the present paper provides new empirical evidence on the impact of economic freedom on the performance of Islamic banks operating in the MENA countries banking sectors.

3.0 DATA AND METHODOLOGY

The present study employs an unbalanced annual bank level data of all Islamic banks operating in the MENA countries covering the period 2000-2008. The financial statements of Islamic banks operating in the MENA banking sectors are collected from the Bankscope database of Bureau van Dijk's company. The macroeconomic variables are retrieved from the IMF Financial Statistics (IFS) and the World Bank World Development Indicator (WDI) databases while economic freedom variables are extracted from The Heritage Foundation.

3.1 Measure of Performance

Following Ben Naceur and Goaied (2008), Kosmidou (2008), and Abbasoglu *et al*. (2007) among others, the dependent variable used in this study is Return on Assets (ROA). ROA shows the profit earned per dollar of assets and most importantly, reflects management ability to utilize banks financial and real investment resources to generate profits (Hassan and Bashir, 2003). For any bank, ROA depends on the bank's policy decisions as well as other uncontrollable factors relating to the economy and government regulations. Rivard and Thomas (1997) suggest that bank profitability is best measured by ROA, since it is not distorted by high equity multipliers and represents a better measure of the ability of firms to generate returns on its portfolio of assets.

3.2 Internal Determinants

The bank specific variables included in the regression models are LLP/TL (loans loss provisions divided by total loans), EQASS (book value of stockholders' equity as a fraction of total assets), NIE/TA (total overhead expenses divided by total assets), LOANS/TA (total loans divided by total assets), and LNTA (log of total assets).

The ratio of loan loss provisions to total loans (LLP/TL) is incorporated as an independent variable in the regression analysis as a proxy of credit risk. The coefficient of the LLP/TL variable is expected to enter the regression models with a negative sign. In this vein, Miller and Noulas (1997) point out that the greater the exposure of banks to high risk loans, the higher would be the accumulation of unpaid loans and profitability would be lower. Miller and Noulas (1997) suggest that decline in loan loss provisions are in many instances the primary catalyst for increases in profit margins. Furthermore, Thakor (1987) also suggests that the level of loan loss provisions is an indication of the bank's asset quality and signals changes in future performance.

The EQASS variable is included in the regression models to examine the relationship between profitability and bank capitalization. Strong capital structure is essential for banks in developing economies, since it provides additional strength to withstand financial crises and increased safety for depositors during unstable macroeconomic conditions. Furthermore, lower capital ratios in banking imply higher leverage and risk and therefore greater borrowing costs. Thus, the profitability level should be higher for the better capitalized bank.

The ratio of non-interest expenses over total assets, NIE/TA, is used to provide information on the variations of bank operating costs. The variable represents total amount of wages and salaries, as well as the costs of running branch office facilities. The relationship between the NIE/TA variable and profitability levels is expected to be negative, because the more productive and efficient banks should be able to keep their operating costs low. Furthermore, the usage of new electronic technology, like ATMs and other automated means of delivering services, may have caused expenses on wages to fall (as capital is substituted for labor).

An important decision that the managers of Islamic banks must take refers to the liquidity management and specifically to the measurement of their needs related to the

process of deposits and loans. For that reason, the ratio of total loans to total assets (LOANS/TA) is used as a measure of liquidity. Higher figures denote lower liquidity. Without the required liquidity and funding to meet obligations, a bank may fail. Thus, in order to avoid insolvency problems, banks often hold liquid assets, which can be easily converted to cash. However, liquid assets are usually associated with lower rates of return. It would therefore reasonable to expect higher liquidity to be associated with lower bank profitability.

The LNTA variable is included in the regression models as a proxy of size to capture for the possible cost advantages associated with size (economies of scale). In the literature, mixed relationships are found between size and profitability, while in some cases a U-shaped relationship is observed. LNTA is also used to control for cost differences related to bank size and for the greater ability of the large bank to diversify. In essence, LNTA may lead to positive effects on bank profitability if there are significant economies of scale. On the other hand, if increased diversification leads to higher risks, the variable may exhibit negative effects.

3.3 External Determinants

If analysis is done in a static setting, they may fail to capture developments in the regulatory environment and in the marketplace, which may have changed the underlying production technology and the associated production functions. Furthermore, different banking forms could demonstrate different reactions to environmental changes. Hence, the change in the financial landscape and structure, etc., may vary across banking groups (Saunders *et al*. 1990; Button and Weyman-Jones, 1992; Berger, 1995). To measure the relationship between economic and market conditions and Islamic banks' performance, LNGDP, INFL, CR3, and Z-SCORE variables are used.

Gross domestic product (GDP) is among the most commonly used macroeconomic indicator to measure total economic activity within an economy. The GDP is expected to influence numerous factors relating to the supply and demand for loans and deposits. Favourable economic conditions will affect positively on the demand and supply of banking services, but will have either positive or negative influence on bank profitability levels.

Another important macroeconomic condition which may affect both the costs and revenues of banks is the inflation rate (INFL). Staikouras and Wood (2003) points out that inflation may have direct effects i.e. increase in the price of labour and indirect effects i.e. changes in interest rates and asset prices on the profitability of banks. Perry (1992) suggests that the effects of inflation on bank performance depend on whether the inflation is anticipated or unanticipated. In the anticipated case, the profit rates are adjusted accordingly resulting in revenues to increase faster than costs subsequently positive impact on bank profitability. On the other hand, in the unanticipated case, banks may be slow to adjust their interest rates resulting in a faster increase of bank costs compared to bank revenues and consequently negative effects on bank profitability[9].

To examine the impact of concentration on Islamic banks' performance, the CR3 variable is introduced in the regression models. The CR3 ratio is calculated as the total assets held by the three largest banks in the country. The variable is used to examine the impact of asset concentration in the national banking sector on the profitability of Islamic banks. The Structure-Conduct-Performance (SCP) theory posits that banks in a highly concentrated market tend to collude and therefore earn monopoly profits (Molyneux *et al*. 1996). Berger (1995) points out that the relationship between bank concentration and performance in the U.S. depends critically on what other factors are held constant. According to the industrial

9 Islamic banks income must not be uncontaminated by usury (*riba'*). Thus, in the case of the Islamic banking sector, it is reasonable to assume that the interest rate to be the profit rate.

organization literature, a positive impact is expected under both collusion and efficiency views (Goddard *et al*. 2001).

The *Z*-Score (Z-SCORE) variable is used as a proxy of bank soundness. The index measures how many standard deviations a bank is away from exhausting its capital base (a distance-to-default measure). The *Z*-Score is a popular measure of soundness because it combines banks' buffers (capital and profits) with the risks they face in a way that is grounded in theory (Cihak *et al*. 2009). A higher *Z*-Score implies a lower probability of insolvency, providing a more direct measure of soundness than, for example, simple leverage measures (Cihak *et al*. 2009). This index combines in a single indicator: (i) *profitability*, given by a period average return on assets (ROA); *leverage measure*, given by the period average equity-to-asset ratio (*K*) (equity here is defined as total equity from the balance sheet of a bank); and *return volatility*, given by the period standard deviation of ROA (*Vol*. (ROA)) i.e. $Z = \frac{ROA + K}{Vol.(ROA)}$, where *ROA* (profitability) is a period average of ROA, *K* (leverage measure) is the period average equity-to-asset ratio, and *Vol*. (*ROA*) is the return volatility given by the period standard deviation of ROA. A higher (lower) Z-SCORE indicates lower (higher) risk (De Nicolo *et al*. 2003).

3.4 Economic Freedom Measurements

In simple terms, economic freedom is a conceptual measure of the private ownership and market allocation of resources, in lieu of government ownership and control. Expressing the sentiment of many, including the originators of the economic freedom index, Berggren (2003) defines economic freedom as "the degree to which an economy is a market economy--that is, the degree to which it entails the possibility of entering into voluntary contracts within the framework of a stable and predictable rule of law that upholds contracts and protects private property, with a limited degree of interventionism in the form of government ownership, regulations, and taxes".

In regression model 2, OVER_FREE is introduced to examine the impact of overall economic freedom on the performance of the Islamic banks operating in the MENA banking sectors. OVER_FREE is the overall economic freedom index and is defined by multiple rights and liberties. The index uses 10 specific freedoms, namely *Business freedom*, *Trade freedom*, *Fiscal freedom*, *Government size*, *Monetary freedom*, *Investment freedom*, *Financial freedom*, *Property rights*, *Labor freedom*, and *Freedom from corruption*.

Besides the overall economic freedom index, we have selected three other indices which are closely related to the financial sector. These include BUSI_FREE, MONE_FREE, and FINA_FREE indices. BUSI_FREE is the business freedom index. The index measures how free entrepreneurs are to start businesses, how easy it is to obtain licenses, and the ease of closing a business. Impediments to any of these three activities are deterrents to businesses and therefore to job creations. MONE_FREE is the monetary freedom index. The index combines a measure of price stability with an assessment of price controls. Both inflation and price control distorts market activity. Price stability without microeconomic intervention is an ideal state of a free market. FINA_FREE is the financial freedom index. The index is a measure of banking security as well as independence from government's control. State ownership of banks and other financial institutions such as insurer and capital markets is an inefficient burden and political favoritism has no place in a free capital market. All these indices have 0 to 100 scales, where 100 represents maximum freedom. A score of 100 signifies an economic environment, or set of policies that is most conducive to economic freedom.

Finally, CORR_FREE is introduced in regression model 6 to assess the impact corruption on the performance of Islamic banks. CORR_FREE is the freedom from

corruption index. The index is based on quantitative data that assess the perception of corruption in the business environment, including levels of governmental, legal, judicial, and administrative corruption. Similar to the BUSI_FREE, MONE_FREE, and FINA_FREE indices, the CORR_FREE index also takes a value of between 0 and 100, where 100 represent the maximum freedom. Table 1 contains the summary statistics of the variables used to proxy profitability and its determinants.

[**Insert Table 2 about here**]

3.4 Econometric Specification

Since the panel data cover many heterogenous banks and time periods, the possible correlation between the regressors and bank-specific effects, the endogeneity of regressors with respect to idiosyncratic shock and the heteroscedasticity of the disturbance term (idioscyncratic shock) would result in a biased and inconsistent estimation with Ordinary Least Square (OLS) estimation technique. The OLS estimator would result in an upward estimate of the coefficient while the within-group estimator would be downward biased (Blundell *et al*. 1992). A natural technique for dealing with variable that are correlated with the error term is to instrument them.

Berger *et al*. (2000) points out that bank profitability tend to persist over time reflecting impediments to market competition, informational opacity, and sensitivity to macroeconomic shocks. Furthermore, Garcia-Herrero *et al*. (2009) suggest that potential endogeneity could be a problem when assessing bank profitability determinants. For instance, the more profitable banks may have sufficient resources to provision for their non-performing loans. The more profitable banks may also find it easier to increase their customer base via successful advertising campaigns and could hire the most skilled personnel, and therefore enhances their profitability levels (Garcia-Herrero *et al*. 2009).

Arellano and Bond (1991) proposed an efficient Generalized Methods of Moment (GMM) estimator that uses instruments of which the validity is based on the orthogonality between the lagged values of the dependent variable and the errors. The technique eliminates the unobserved bank heterogeneity by estimating the equation in first-differences and to control for possible endogeneity problem by using the model's variables lagged by one or more periods as instruments. We employ the GMM estimator as proposed by Arellano and Bond (1991) to ensure efficiency and consistency of the estimations. Therefore, a dynamic GMM model is adopted via the inclusion of a lagged dependent variable among the regressors to capture the persistence of bank profitability over time reflecting impediments to market competition, informational opacity, and/or sensitivity to regional/macroeconomic shocks (Berger *et al*. 2000).

The baseline model is formulated as follows:

$$\pi_{it} = \alpha + \lambda\pi_{i,t-1} + \sum \beta X_{it} + \sum \gamma M_t + \sum \delta E_t + \mu_t + \upsilon_i + \varepsilon_{it} \quad (1)$$

where i=1,2,….,N (number of firms) and t=1,2,…,T (time period). In the specification, π_{it} denotes the profitability of bank i at time t; π_{t-1} indicates a one period lagged profitability; $X_{i,t}$ is vector exogenous bank-specific regressors: M_t is a vector of country specific variables; E_i is a vector of country specific economic freedom variables; μ_t is a time fixed effect; υ_i is an unobserved banks' fixed effect; $\varepsilon_{i,t}$ is a serially uncorrelated error term.

We use several tests proposed by Arellano and Bond (1991) to check whether the instruments are properly chosen and the assumptions underlying the model holds. Our estimations rely on the fact that the disturbances follow an MA(1) process and there is no second order autocorrelation (*m*2) together with Sargan/Hansen tests of over-identifying restriction (*J*-test) to examine the validity of the instruments used in the regression models.

Extending Eq. (1) to reflect the variables as described in Table 2, the baseline model is formulated as follows:

$$\begin{aligned} ROA_{jt} = \beta_0 &+ \beta_1 LOANS/TA_{jt} + \beta_2 LNTA_{jt} + \beta_3 LLP/TL_{jt} + \beta_4 NIE/TA_{jt} + \beta_5 EQASS_{jt} \\ &+ \beta_6 LNGDP_t + \beta_7 INFL_t + \beta_8 CR3_t + \beta_9 Z\text{-}SCORE_t \\ &+ \beta_9 OVER\_FREE_t + \beta_{10} BUSI\_FREE_t + \beta_{11} MONE\_FREE_t \\ &+ \beta_{12} FINA\_FREE_t + \beta_{13} CORR\_FREE_t \\ &+ \varepsilon_{jt} \end{aligned} \quad (2)$$

Table 3 provides information on the degree of correlation between the explanatory variables used in the panel regression analysis. In general, the matrix shows that the correlation between the bank specific variables are not strong, implying that multicollinearity problems are not severe. Kennedy (2008) points out that multicollinearity is a problem when the correlation is above 0.80 which is not the case here. However, it is worth noting that the LNGDP variable is highly correlated to most of the economic freedom variables. To address this concern, we have also estimated all regression models by excluding the macroeconomic variables. Furthermore, due to the high correlation between the economic freedom variables, the regression models are estimated by including the each economic freedom indicator at a time, rather than estimating all economic freedom variables concurrently.

[**Insert Table 3 about here**]

4.0 EMPIRICAL FINDINGS

The regression results focusing on the relationship between bank profitability and the explanatory variables are presented in Table 4. The reliability of our econometric methodology depends critically on the validity of the instruments, which can be evaluated with Sargan's test of overidentifying restrictions, asymptotically distributed as χ^2 in the number of restrictions. A rejection of the null hypothesis that instruments are orthogonal to the errors would indicate that the estimates are not consistent (Baum *et al*. 2010)[10]. We also present test statistics for the first and second order serial correlations in the error process. In a dynamic panel data context, second order serial correlation should not be present if the instruments are appropriately uncorrelated with the errors (Baum *et al*. 2010).

It can be observed from Table 4 that for all the estimated models, the Sargan statistics for overidentifying restrictions and the Arrelano–Bond *AR*(2) tests shows that our instruments are appropriately orthogonal to the error and no second order serial correlation is detected respectively. Furthermore, the highly significant of the lagged dependent variable's coefficient confirms the dynamic character of the model specification, thus justifying the use of dynamic panel data model estimation.

[**Insert Table 4 about here**]

10 Following Garcia-Herrero *et al*. (2009) among others, we instrument for all regressors. The macroeconomic characteristics are treated as exogenous (see among others Baum *et al*. 2010).

Concerning the liquidity results, the empirical findings suggest a negative sign of the coefficient of the LOANS/TA in the baseline regression model. As higher (lower) figures of the ratio denote lower (higher) liquidity levels, the results imply that the relatively less (more) liquid banks tend to exhibit higher (lower) profitability levels. On the other hand, the empirical findings also suggest that the coefficient of the variable is positive when we control for overall economic freedom, business freedom, financial freedom, and freedom from corruption. However, the results should be interpreted with caution since the coefficient of the variable is not significant at any conventional levels in any of the regression models estimated.

It can be observed from Table 4 that the coefficient of the LNTA variable entered the baseline regression model with a negative sign and is statistically significant when we control for economic and financial market conditions lending support to Spathis *et al*. (2002), Dogan and Fausten (2003), and Kosmidou (2008). Moreover, the earlier studies have concluded that marginal cost savings could be achieved by increasing the size of the banking firm, especially as markets develop (Berger *et al*. 1987; Boyd and Runkle, 1993; Miller and Noulas, 1997; Athanasoglou *et al*. 2008). In this vein, Eichengreen and Gibson (2001) suggest that the effect of a growing bank's size on performance may be positive up to a certain limit. Beyond this point the effect of size could be negative due to bureaucratic and other reasons.

As expected, the impact of credit risk (LLP/TL) is negative (statistically significant at the 10% level) suggesting that Islamic banks with higher credit risk tend to exhibit lower profitability levels. The results imply that Islamic banks should focus more on credit risk management, which has been proven to be problematic in the recent past. Serious banking problems have arisen from the failure of financial institutions to recognize impaired assets and create reserves to write off these assets. An immense help towards smoothing these anomalies would be provided by improving the transparency of the banking sector, which in turn will assist banks to evaluate credit risk more effectively and avoid problems associated with hazardous exposure.

Similarly, the empirical findings seem to suggest that expense preference behaviour measured by NIE/TA has consistently exhibit a negative relationship. The finding is in consonance with the *bad management* hypothesis of Berger and DeYoung (1997). Low measure of efficiency is a signal of poor senior management practices, which apply to input-usage and day-to-day operations. Clearly, efficient cost management is a prerequisite to improve the profitability of Islamic banks operating in the MENA banking sectors. Furthermore, most of the MENA countries banking sectors have not reached the maturity level required to link quality effects from increased spending to higher earnings.

Referring to the impact of capitalization, it can be observed from Table 4 that EQASS exhibits a positive relationship. The result is consistent with the previous studies by among others Isik and Hassan (2003), Goddard *et al*. (2004), and Kosmidou (2008) providing support to the argument that the well capitalized banks face lower costs of going bankrupt, thus lowers their cost of funding or that they have lower needs for external funding resulting in a higher profitability level. Nevertheless, strong capital structure is essential for banks in emerging economies since it provides additional strength to withstand financial crises and increased safety for depositors during unstable macroeconomic conditions (Sufian, 2009). However, it should be noted that the coefficient of the variable is not significant at any conventional levels in any of the regression models estimated.

The empirical findings seem to suggest that LNGDP has positive and significant impact on the profitability of Islamic banks operating in the MENA countries, lending support to the association between economic growth and banking sector's performance. The high economic growth could have encouraged Islamic banks to lend more and improve the

quality of their assets. The demand for financial services tends to grow as economies expand and societies become wealthier. Likewise, it can be observed from Table 4 that the coefficient of the INFL variable exhibits a positive sign in the baseline regression model, implying that during the period under study the levels of inflation have been anticipated by Islamic banks operating in the MENA banking sectors. This allows bank managements the opportunity to adjust the profit rates accordingly and consequently earn higher profitability.

Turning to the impact of banking sector's concentration, it can be observed from Table 4 that the coefficient of the three banks concentration ratio (CR_3) has consistently exhibit a positive sign and becomes statistically significant when we control for freedom from corruption (CORR_FREE). Within the context of the MENA Islamic banking sector, the empirical findings clearly lend support to the SCP hypothesis. The SCP hypothesis states that banks in a highly concentrated market tend to collude and therefore earn monopoly profits (Short, 1979; Gilbert, 1984; Molyneux *et al*. 1996). It can be observed from Table 4 that the impact of banking sector risk (Z-SCORE) is positive and highly significant. The result is in consonance with the findings of among others Boyd and De Nicolo (2006) lending support to the stringent capital requirements of Basel II. From the policymaking point of view, the empirical findings calls for a more effective policymaker's role in reducing excessive bank risk exposures and at the same time to induce more efficient risk management practices by Islamic banks operating in the MENA banking sectors.

4.1 Does Greater Economic Freedoms Foster Bank Performance?

To address the issue whether economic freedom matters in determining the performance of Islamic banks operating in the MENA banking sectors, we re-estimate Eq. (2) to include the economic freedom indices variables discussed in Section 3. The results are presented in columns 3 to 7 of Table 4. As observed, the empirical findings presented in column 3 of Table 4 suggest that the coefficient of the overall economic freedom (OVER_FREE) variable is negative, but is not statistically significant at any conventional levels.

Concerning the impact of business freedom (BUSI_FREE) on the profitability of Islamic banks, the empirical findings presented in column 4 of Table 4 indicate that the coefficient of the BUSI_FREE variable is positive. The results imply that the greater ability to start, operate, and close businesses fosters the performance of Islamic banks. Clearly, the greater ability to set up new businesses in the MENA countries is a prerequisite to improve the performance of the Islamic banking sector.

Referring to the impact of monetary freedom (MONE_FREE), it is interesting to note that the coefficient of the variable is negative. If anything could be delved, the empirical findings indicate that higher (lower) government intervention in the market increases (reduces) the profitability of Islamic banks operating in the MENA banking sectors. A stable and reliable monetary policy is crucial to business environment, as it may help firms and societies to make investment, savings, and other long-term plans. High inflation rates not only confiscate wealth, but also distort pricing, misallocate resources, and raise the cost of doing business. Furthermore, the value of a country's currency largely depends on the monetary policy of its government. A monetary policy that endeavors price stability and puts inflation at bay, enables firms to rely on the market prices for their future investments plans.

As expected, the coefficient of the financial freedom (FINA_FREE) variable entered the regression model with a statistically significant positive sign, suggesting that banking security as well as independence from government control exerts positive impact on Islamic banks' profitability. The more banks are controlled by the government, the less free they are to engage in essential financial activities that facilitate private sector led economic growth.

Finally, it is observed from column 6 of Table 4 that the coefficient of the freedom from corruption (CORR_FREE) variable exhibits a negative sign (statistically significant at the 1% level). The empirical findings from this study clearly suggest that corruption (e.g. corruption in the business environment, including levels of governmental, legal, judicial, and administrative) has significant negative impact on the profitability of Islamic banks operating in the MENA banking sectors.

4.2 Robustness Checks

In order to check for the robustness of the results, we carry out several sensitivity analyses. First, in light of Holmes *et al*. (2008) arguments, we remove all the macroeconomic and market conditions variables from the regression models and repeat Eq. (2). The regression results are presented in Table 5. All in all, it can be observed that the coefficients of the baseline regression models stay mostly the same: the sign and the order of magnitude remained similar and significant as in the baseline regression models. As observed, the empirical findings suggest that the coefficient of the OVER_FREE, BUSI_FREE, and MONE_FREE entered the regression models with a negative sign, but are insignificant. From column 4 of Table 5 it can be observed that the coefficient of the financial freedom (FINA_FREE) retains its positive sign and is significant. On a similar vein, the empirical findings suggest that CORR_FREE exhibits the same negative sign.

[Insert Table 5 about here]

Second, it is also interesting to examine the persistence of the explanatory variables over time. To do so, we lag all the explanatory variables by one period and repeat Eq. (2). The results are presented in Table 6. As can be seen, the coefficients of the baseline variables remain stable as in the baseline regression model. It is also worth noting that the coefficient of the LNTA variable is now significant in four out of the six models estimated, while LLP/TL has consistently exhibit negative and significant impact on Islamic banks' profitability levels. The empirical findings suggest that the impact of capitalization (EQASS) is positive in all of the regression models estimated.

It is also interesting to note that the impact of overall economic freedom (OVER_FREE) is now positive and significant. The empirical findings seem to support the notion that economic freedom is a key to the creation of an environment that allows a virtuous cycle of entrepreneurship, innovation, and sustained economic growth and development to flourish. Furthermore, economies with higher levels of economic freedom are likely to enjoy higher living standards (Holmes *et al*. 2008). Holmes *et al*. (2008) points out that a higher level of economic freedom is associated with a higher level of per capita GDP. They also suggest that countries which increase their levels of freedom tend to experience faster growth rates and the freest economies also have lower rates of unemployment and inflation. However, the coefficient of the variable is insignificant. Similarly, the empirical findings seem to suggest that the coefficient of the BUSI_FREE is significantly related to the profitability of Islamic banks operating in the MENA banking sectors. However, it can also be observed from columns 5 and 6 of Table 6 that financial freedom and freedom from corruption loses their explanatory power.

[Insert Table 6 about here]

Third, we restrict our sample to banks with more than three years of observations. All in all, the results remain qualitatively similar in terms of directions and significance levels. Finally, we address the effects of outliers in the sample by excluding the top and bottom 1%

of the sample. The results continued to remain robust in terms of directions and significance levels.[11]

5.0 CONCLUDING REMARKS

By using an unbalanced bank level panel data, the study attempts to examine the impact of economic freedom on the performance of Islamic banks operating in the MENA banking sectors during the period 2000-2008. We find that the larger, more diversified, and better capitalized banks are relatively more profitable. The empirical findings seem to suggest that efficient cost management is a prerequisite to improve the profitability of Islamic banks operating in the MENA banking sectors. Similarly, we find that higher credit risk has negative and significant influence on the profitability of Islamic banks operating in the MENA banking sectors. The results suggest economic conditions exert negative impact on Islamic banks' profitability levels when we control for overall economic freedom, monetary freedom, and freedom from corruption. We also find that the level of inflation has positive impact when we control for monetary and financial freedom.

The findings from this study seem to suggest that greater financial and business freedom exerts positive impacts on the profitability of Islamic banks operating in the MENA banking sectors. The positive coefficient of the financial freedom variable indicate that higher (lower) freedom on the activities that Islamic banks could undertake increases (reduces) their profitability, which is consistent with the view that less regulatory control allows banks to engage in various activities enabling banks to exploit economies of scale and scope and generate income from non-traditional sources. Furthermore, higher freedom on entrepreneurs to start businesses is conducive to job creation and consequently increases Islamic banks' profitability. Interestingly, the impact of monetary freedom is negative implying that higher (lower) monetary policy independence reduces (increases) Islamic banks' profitability, providing support to the benefits of government interventions. In essence, although price stability without intervention is an ideal state for a free market, the empirical findings from this study clearly lend support to the benefits of government interventions in the markets.

The findings of this study present considerable policy relevance. In view of the increasing competition attributed to the more liberalized banking sector, bank managements as well as the policymakers will be more inclined to find ways to obtain the optimal utilization of capacities as well as making the best use of their resources, so that these resources are not wasted during the production of banking products and services. The findings pointed to the need for bankers to choose flexible operating environment and economic system favouring the rapid development of a vibrant banking sector to maximize their performance. From the regulatory perspective, the performance of the Islamic banking sector will be based on their operating performance. Therefore, policy direction is expected to point towards enhancing the resilience and performance of the banking institutions with the aim of intensifying the robustness and stability of the Islamic banking sector.

Within MENA countries, enhancing economic freedom is of an importance policy if the region is to attract more financial investments, improve weak financial infrastructure and enhance the banking system performance. The current state of the financial sector in MENA which mainly controlled by state owned banks and dominate banking activities (up to 95% of assets in several countries in the MENA region) resulting in poor services, high costs, and weak financing of new investments and trade. As the MENA region competes for economic benefits for its citizens in the new global economy, it is important that the policy makers in these countries to improve their quality of governance and transparency; to promote a legal

11 To conserve space, we do not report the regression results in the paper but are available upon request.

system that protects shareholders and creditors rights; and to enhance their economic freedom.

REFERENCES

1. Abbasoglu, O.F., Aysan, A.F. and Gunes, A. (2007), "Concentration, Competition, Efficiency, and Profitability of the Turkish Banking Sector in the Post-Crisis Period," *Banks and Bank Systems*, 2(3), 106-115.
2. Adkins, L., Moomaw, R. and Savvides, A. (2002), "Institutions, Freedom and Technical Efficiency," *Southern Economic Journal*, 69(1), 92-108.
3. Albertazzi, U. and Gambacorta, L. (2009), "Bank Profitability and the Business Cycle," *Journal of Financial Stability*, 5(4), 393-309.
4. Altman, M. (2008), "How Much Economic Freedom is Necessary for Economic Growth? Theory and Evidence," *Economics Bulletin*, 15(2), 1-20.
5. Athanasoglou, P.P., Brissimis, S.N. and Delis, M.D. (2008), "Bank Specific, Industry Specific and Macroeconomic Determinants of Bank Profitability," *Journal of International Financial Markets, Institutions and Money*, 18(2), 121-136.
6. Bashir, A.H.M. (1999), "Risk and Profitability Measures in Islamic Banks: The Case of Two Sudanese Banks," *Islamic Economic Studies*, 6(2), 1–24.
7. Bashir, A.H.M. (2001), "Assessing the Performance of Islamic Banks: Some Evidence from the Middle East," paper presented at the American Economic Association Annual Meeting, New Orleans, Louisiana.
8. Baum, C.F., Caglayan, M. and Talavera, O. (2010), "Parliamentary Election Cycles and the Turkish Banking Sector," *Journal of Banking and Finance*, 34(11), 2709-2719.
9. Ben Naceur, S. and Goaied, M. (2008), "The Determinants of Commercial Bank Interest Margin and Profitability: Evidence from Tunisia," *Frontiers in Finance and Economics*, 5(1), 106-130.
10. Berger, A.N. (1995), "The Relationship Between Capital and Earnings in Banking," *Journal of Money, Credit and Banking*, 27(2), 432-456.
11. Berger, A.N. and DeYoung, R. (1997), "Problem Loans and Cost Efficiency in Commercial Banks," *Journal of Banking and Finance*, 21(6), 849-870.
12. Berger, A.N. and Humphrey, D.B. (1997), "Efficiency of Financial Institutions: International Survey and Directions for Future Research," *European Journal of Operational Research*, 98(2), 175-212.
13. Berger, A.N., Bonime, S.D., Covitz, D.M. and Hancock, D. (2000), "Why Are Bank Profits So Persistent? The Roles of Product Market Competition, Information Opacity and Regional Macroeconomic Shocks," *Journal of Banking and Finance*, 24(7), 1203-1235.
14. Berger, A.N., Hanweck, G.A. and Humphrey, D.B. (1987), "Competitive Viability in Banking: Scale Scope and Product Mix Economies," *Journal of Monetary Economics*, 20(3), 501-520.
Berggren, N. (2003), "The Benefits of Economic Freedom: A Survey," *Independent Review*, 8(2), 193-211.
15. Blundell, R. and Bond, S. (1998), "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models," *Journal of Econometrics*, 87(1), 115–143.
16. Boyd, J. and Runkle, D. (1993), "Size and Performance of Banking Firms: Testing the Predictions Theory," *Journal of Monetary Economics*, 31(1), 47-67.
17. Boyd, J.H. and De Nicolo, G. (2006), "The Theory of Bank Risk Taking and Competition Revisited," *The Journal of Finance*, 60(3), 1329-1343.
18. Button, K.J. and Weyman-Jones, T.G. (1992), "Ownership Structure, Institutional Organization and Measured X-Efficiency," *The American Economic Review*, 82(2), 439-445.
19. Čihák, M., Maechler, A., Schaeck, K. and Stolz, S. (2009), "Who Disciplines Bank Managers?" Working Paper, International Monetary Fund.

20. De Haan, J. and Siermann, C.L.J. (1998), "Further Evidence on the Relationship between Economic Freedom and Economic Growth," *Public Choice*, 95(3-4), 363-380.
21. De Haan, J. and Sturm, J.E. (2000), "On the Relationship between Economic Freedom and Economic Growth," *European Journal of Political Economy*, 16(2), 215-241.
22. DeNicolo, G., Bartholomew, P., Zaman, J. and Zephirin, M. (2003), "Bank Consolidation, Internationalization, and Conglomeration: Trends and Implications for Financial Risk," *Financial Markets, Institutions & Instruments*, 13(4), 173-217.
23. DeYoung, R. and Rice, T. (2004), "Non-Interest Income and Financial Performance at US Commercial Banks," *Financial Review*, 39(1), 101-127.
24. Dogan, E. and Fausten, D.F. (2003), "Productivity and Technical Change in Malaysian Banking: 1989-1998," *Asia-Pacific Financial Markets*, 10(2-3), 205-237.
25. Eichengreen, B. and Gibson, H.D. (2001), "Greek Banking at the Dawn of the New Millennium," Discussion Paper, Center of Economic and Policy Research.
26. El Qorchi, M. (2005), "Islamic Finance Gears Up", *Finance and Development*, 42(4), 46-49.
27. El-Gamal and Inanoglu (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.
28. El-Gamal, M.A. and Inanoglu, H. (2005), "Efficiency and Unobserved Heterogeneity in Turkish Banking" *Journal of Applied Econometrics*, 20(5), 641-664.
29. Garcia-Herrero, A., Gavila, S. and Santabarbara, D. (2009), "What Explains the Low Profitability of Chinese Banks?" *Journal of Banking and Finance*, 33(11), 2080-2092.
30. Gilbert, R. (1984), "Bank Market Structure and Competition – A Survey," *Journal of Money, Credit and Banking*, 16(4), 617-645.
31. Goddard, J., Molyneux, P. and J. Wilson (2004), "Dynamic of Growth and Profitability in Banking," *Journal of Money, Credit and Banking*, 36(6), 1069-1090
32. Goddard, J., Molyneux, P. and Wilson, J.O.S. (2001). *European Banking: Efficiency, Technology and Growth*. New York: John Wiley and Sons.
33. Hassan, M.K and Hussein, K.A. (2003), "Static and Dynamic Efficiency in the Sudanese Banking System," *Review of Islamic Economics*, 14, 5-48.
34. Hassan, M.K. (2006), "The X-Efficiency of Islamic Banks," *Islamic Economic Studies*, 13(1-2), 49-77.
35. Hassan, M.K. and Bashir, A.H.M. (2003), "Determinants of Islamic Banking Profitability," Paper Presented at the 10th ERF Annual Conference, 16th - 18th December, Morocco.
36. Hawtrey, K. and Liang, H. (2008), "Bank Interest Margins in OECD Countries," *The North American Journal of Economics and Finance*, 19(3), 249-260.
37. Heckelman, J.C. (2000), "Economic Freedom and Economic Growth: A Short-Run Causal Investigation," *Journal of Applied Economics*, 3(1), 71-91.
38. Heckelman, J.C. and Knack, S. (2009), "Aid, Economic Freedom and Growth," *Contemporary Economic Policy*, 27(1), 46-53.
39. Heckelman, J.C. and Stroup, M.D. (2000), "Which Economic Freedoms Contribute to Growth?" *KYKLOS*, 53(4), 527-544.
40. Hirtle, B.J. and Stiroh, K.J. (2007), "The Return to Retail and the Performance of US Banks," *Journal of Banking and Finance*, 31(4), 1101-1133.
41. Holmes, K.R., Feulner, E.J., and O'Grady, M.A. (2008). *2008 Index of Economic Freedom*. The Heritage Foundation: Washington, D.C.
42. Hussein, K.A. (2003), "Operational Efficiency in Islamic Banking: The Sudanese Experience," Working Paper, Islamic Research and Training Institute (IRTI), Islamic Development Bank.

43. Isik, I. and Hassan, M.K. (2003), "Efficiency, Ownership and Market Structure, Corporate Control and Governance in the Turkish Banking Industry," *Journal of Business Finance and Accounting*, 30(9-10), 1363-1421.
44. Kasman, A., Tunc, G., Vardar, G. and Okan, B. (2010), "Consolidation and Commercial Bank Net Interest Margins: Evidence from the Old and New European Union Members and Candidate Countries," *Economic Modelling*, 27(3), 648-655.
45. Kennedy, P. (2008), A Guide to Econometrics. Blackwell Publishing: Malden, Massachusetts.
46. Kosmidou, K. (2008), "The Determinants of Banks' Profits in Greece during the Period of EU Financial Integration," *Managerial Finance*, 34(3), 146-159.
47. Kosmidou, K. and Zopounidis, C. (2008), "Measurement of Bank Performance in Greece," *South Eastern Europe Journal of Economics*, 6(1), 79-95.
48. Kosmidou, K., Pasiouras, F. and Tsaklanganos, A. (2007), "Domestic and Multinational Determinants of Foreign Bank Profits: The Case of Greek Banks Operating Abroad," *Journal of Multinational Financial Management*, 17(2-3), 1-15.
49. Miller, S.M. and Noulas, A. (1997), "Portfolio Mix and Large Bank Profitability in the USA," *Applied Economics*, 29(4), 505-512
50. Molyneux, P., Altunbas, Y. and Gardener, E.P.M. (1996). *Efficiency in European Banking*. John Wiley & Sons, Chichester.
51. North, D., Thomas, R.P., (1973). *The Rise of the Western World: A New Economic History*. Cambridge: Cambridge University Press.
52. Pasiouras, F. and Kosmidou, K. (2007), "Factors Influencing the Profitability of Domestic and Foreign Commercial Banks in the European Union," *Research in International Business and Finance*, 21(2), 222-237.
53. Perry, P. (1992), "Do Banks Gain or Lose from Inflation," *Journal of Retail Banking*, 14(2), 25-40.
54. Powell, B. (2003), "Economic Freedom and Growth: The Case of the Celtic Tiger," *Cato Journal*, 22(3), 431-448.
55. Rivard, R.J. and Thomas, C.R. (1997), "The Effect of Interstate Banking on Large Bank Holding Company Profitability and Risk," *Journal of Economics and Business*, 49(1), 61-76.
56. Sarker, M.A.A. (1999), "Islamic Banking in Bangladesh: Performance, Problems, and Prospects," *International Journal of Islamic Financial Services*, 1(3), 15-36.
57. Saunders, A., Strock, E., and Travlos, N.G. (1990), "Ownership Structure, Deregulation, and Bank Risk Taking," *Journal of Finance*, 45(2), 643-654.
58. Short, B.K. (1979), "The Relation Between Commercial Bank Profit Rate and Banking Concentration in Canada, Western Europe and Japan," *Journal of Banking and Finance*, 3(3), 209-219.
59. Spathis, C., Kosmidou, K. and Doumpos, M. (2002), "Assessing Profitability Factors in the Greek Banking System: A Multicriteria Methodology," *International Transactions in Operational Research*, 9(5), 517-530.
60. Staikouras, C. and Wood, G. (2003), "The Determinants of Bank Profitability in Europe," Paper presented at the European Applied Business Research Conference, Venice, 9-13 June.
61. Stiroh, K.J. and Rumble, A. (2006), "The Dark Side of Diversification: The Case of US Financial Holding Companies," *Journal of Banking and Finance*, 30(8), 2131-2161.
62. Sufian, F. (2009), "Determinants of Bank Efficiency During Unstable Macroeconomic Environment: Empirical Evidence from Malaysia," *Research in International Business and Finance*, 23(1), 54-77.
63. Thakor, A. (1987), "Discussion", *Journal of Finance*, 42(3), 661-663.
64. Tregenna, F. (2009), "The Fat Years: The Structure and Profitability of the US Banking Sector in the Pre-Crisis Period," *Cambridge Journal of Economics*, 33(4), 609-632.

65. Williams, B. (2003), "Domestic and International Determinants of Bank Profits: Foreign Banks in Australia," *Journal of Banking and Finance*, 27(6), 1185-1210.

Table 1: **Economic Freedom Index for MENA**

Country	World Rank	Regional Ranking	2011 Overall Score	Change from 2010	Business Freedom	Trade Freedom	Fiscal Freedom	Government Spending	Monetary Freedom	Investment Freedom	Financial Freedom	Property Rights	Freedom from Corruption	Labour Freedom
Bahrain	10	1	77.7	1.4	77.4	82.8	99.8	80.2	74.0	75.0	80.0	60.0	51.0	97.0
Qatar	27	2	70.5	1.5	70.3	82.4	99.8	78.1	71.9	45.0	50.0	70.0	70.0	67.0
Oman	34	3	69.8	2.1	69.4	83.6	98.5	68.1	69.5	55.0	60.0	50.0	55.0	89.1
Jordan	38	4	68.9	2.8	65.8	78.8	92.7	60.9	81.4	70.0	60.0	55.0	50.0	74.2
Israel	43	5	68.5	0.8	66.1	87.8	62.3	44.8	78.4	80.0	70.0	70.0	61.0	64.3
UAE	47	6	67.8	0.5	67.3	82.6	99.9	79.1	76.5	35.0	50.0	50.0	65.0	72.4
Saudi Arabia	54	7	66.2	2.0	86.1	82.2	99.4	74.6	64.3	40.0	50.0	45.0	43.0	77.0
Kuwait	61	8	64.9	-2.8	64.4	81.6	99.9	69.7	69.3	55.0	50.0	50.0	41.0	67.9
Lebanon	89	9	60.1	0.6	57.5	80.5	91.0	64.9	77.7	60.0	60.0	25.0	25.0	59.0
Morocco	93	10	59.6	0.4	75.7	75.8	67.8	74.6	76.5	65.0	60.0	40.0	33.0	27.2
Egypt	96	11	59.1	0.1	64.5	74.0	89.6	65.3	60.8	65.0	50.0	40.0	28.0	53.6
Tunisia	100	12	58.5	-0.5	80.2	53.5	73.7	77.6	77.3	35.0	30.0	50.0	42.0	65.7
Yemen	127	13	54.2	-0.2	73.7	81.6	83.2	44.5	82.3	45.0	30.0	30.0	21.0	50.9
Algeria	132	14	52.4	-4.5	69.4	72.8	83.5	62.4	75.4	20.0	30.0	30.0	28.0	52.9
Syria	140	15	51.3	1.9	55.9	65.4	84.6	85.3	69.7	20.0	20.0	30.0	26.0	55.8
Iran	171	16	42.1	-1.3	69.4	44.8	81.1	76.0	60.7	0.0	10.0	10.0	18.0	50.7
Libya	173	17	38.6	-1.6	20.0	85.0	80.3	44.5	71.0	10.0	20.0	10.0	25.0	20.0

Note: Each one of the 10 freedom is graded using a 0 to 100 scale, where 100 represents the maximum freedom. A score of 100 signifies an economic environment or set of policies that is most conducive to economic freedom. Many of the 10 freedoms are based on quantitative data that are converted directly into a score.
Source: The Heritage Foundation.

Table 2: **Descriptive of the Variables Used in the Regression Models**

Variable	Description	Mean	Std. Dev.	Sources/ Database
ROA	A proxy measure of bank profitability measured as the return on average total assets of the bank in year *t*.	2.577	3.798	BankScope
	Independent			
	Internal Factors			
LLP/TL	Loan loss provisions/ total loans. An indicator of credit risk, which shows how much a bank is provisioning in year *t* relative to its total loans.	8.321	14.13	BankScope
EQASS	A measure of bank's capital strength in year *t*, calculated as equity/ total assets. High capital asset ratio is assumed to be indicator of low leverage and therefore lower risk.	21.227	23.458	BankScope
NIE/TA	Calculated as non-interest expense/ total assets and provides information on the efficiency of the management regarding expenses relative to the assets in year *t*. Higher ratios imply a less efficient management.	3.755	3.247	BankScope
LOANS/TA	A measure of liquidity, calculated as total loans/ total assets. The ratio indicates what percentage of the assets of the bank is tied up in loans in year *t*.	48.583	23.706	BankScope
LNTA	The natural logarithm of the accounting value of the total assets of the bank in year *t*.	8.117	2.666	BankScope
	External Factors			
LNGDP	Natural logarithm of gross domestic products.	6.057	4.237	IMF International Financial Statistics
INFL	The rate of inflation.	2.246	2.154	IMF International Financial Statistics
CR3	The three largest banks asset concentration ratio.	0.730	0.151	IMF International Financial Statistics
Z-SCORE	The Z-Score index. Is used as a proxy measure of the banking sector's risk to default.	11.027	6.832	IMF International Financial Statistics
	Economic Freedom			
OVER_FREE	Overall economic freedom is defined by multiple rights and liberties can be quantified as an index of less abstract components. The index uses 10 specific freedoms, some as composites of even further detailed and quantifiable components.	60.464	12.575	Heritage Foundation (www.heritage.org/index)
BUSI_FREE	Business freedom measures how free entrepreneurs are to start businesses, how easy it is to obtain licenses, and the ease of closing a business. Impediments to any of these three activities are deterrents to business and therefore to job creation.	64.890	14.763	Heritage Foundation (www.heritage.org/index)
MONE_FREE	Monetary freedom combines a measure of price stability with an assessment of price controls. Both inflation and price controls distort market activity. Price stability without microeconomic intervention is the ideal state for the free market.	75.829	12.318	Heritage Foundation (www.heritage.org/index)
FINA_FREE	Financial freedom is a measure of banking security as well as independence from government control. State ownership of banks and other financial institutions such as insurer and capital markets is an inefficient burden, and political favoritism has no place in a free capital market.	47.354	26.329	Heritage Foundation (www.heritage.org/index)
CORR_FREE	Freedom from corruption is based on quantitative data that assess the perception of corruption in the business environment, including levels of governmental legal, judicial, and administrative corruption.	46.134	24.140	Heritage Foundation (www.heritage.org/index)

Table 3: **Correlation Matrix for the Explanatory Variables**

The notation used in the table below is defined as follows: LOANS/TA is used as a proxy measure of loans intensity, calculated as total loans divided by total assets; LNTA is a proxy measure of size, calculated as a natural logarithm of total bank assets; LLP/TL is a measure of bank risk calculated as the ratio of total loan loss provisions divided by total loans; NII/TA is a measure of bank diversification towards non interest income, calculated as total non-interest income divided by total assets; NIE/TA is a proxy measure for costs, calculated as non-interest expenses divided by total assets; EQASS is a measure of capitalization, calculated as book value of shareholders equity as a fraction of total assets; LNGDP is natural log of gross domestic products; INFL is the rate of inflation; OVER_FREE is the overall economic freedom index; BUSI_FREE is the business freedom index; MONE_FREE is the monetary freedom index; FINA_FREE is the financial freedom index; CORR_FREE is the freedom from corruption index.

	LLP/TL	**EQASS**	**NIE/TA**	**LOANS/ TA**	**LNTA**	**LNGDP**	**INFL**	**CR3**	**Z-SCORE**	**OVER_ FREE**	**BUSI_ FREE**	**MONE_ FREE**	**FINA_ FREE**	**CORR_ FREE**
LLP/TL	1.000	0.493**	0.048	-0.369**	-0.293**	-0.169*	-0.237**	-0.097	-0.052	0.044	0.095	0.160*	0.031	0.059
EQASS		1.000	0.407**	-0.026	-0.555**	-0.479**	-0.432**	0.007	-0.141*	0.484**	0.514**	0.419**	0.496**	0.387**
NIE/TA			1.000	-0.204**	-0.265**	-0.068	-0.129	0.077	-0.326**	0.148*	0.238**	0.058	0.202**	0.052
LOANS/TA				1.000	0.193	0.025	0.036	-0.015	0.109	-0.032	-0.094	-0.027	-0.117	0.067
LNTA					1.000	0.670**	0.619**	-0.092	0.184**	-0.624**	-0.636**	-0.622**	-0.713**	-0.476**
LNGDP						1.000	0.754**	-0.130*	0.076	-0.841**	-0.759**	-0.791	-0.847**	-0.657**
INFL							1.000	0.142*	0.046	-0.324**	-0.094	-0.569**	-0.135*	-0.140*
CR3								1.000	-0.161**	-0.084	0.002	-0.100	0.181**	-0.177**
Z-SCORE									1.000	0.000	-0.142	0.045	-0.263**	0.220**
OVER_FREE										1.000	0.831**	0.815**	0.846**	0.869**
BUSI_FREE											1.000	0.639**	0.794**	0.732**
MONE_FREE												1.000	0.681**	0.618**
FINA_FREE													1.000	0.608**
CORR_FREE														1.000

Note: The table presents the results from Pearson correlation coefficients.

** and * indicates significance at 1% and 5% levels, respectively.

Table 4: **Panel Generalized Methods of Moments (GMM) Regression Results**

$$ROA_{jt} = \beta_0 + \beta_1 LOANS/TA_{jt} + \beta_2 LNTA_{jt} + \beta_3 LLP/TL_{jt} + \beta_4 NIE/TA_{jt} + \beta_5 EQASS_{jt} + \beta_6 LNGDP_t + \beta_7 INFL_t + \beta_8 CR3_t + \beta_9 Z\text{-}SCORE_t + \beta_9 OVER\_FREE_t + \beta_{10} BUSI\_FREE_t + \beta_{11} MONE\_FREE_t + \beta_{12} FINA\_FREE_t + \beta_{13} CORR\_FREE_t + \varepsilon_{jt}$$

The notation used in the table below is defined as follows: LOANS/TA is used as a proxy measure of loans intensity, calculated as total loans divided by total assets; LNTA is a proxy measure of size, calculated as a natural logarithm of total bank assets; LLP/TL is a measure of bank risk calculated as the ratio of total loan loss provisions divided by total loans; NII/TA is a measure of bank diversification towards non interest income, calculated as total non-interest income divided by total assets; NIE/TA is a proxy measure for costs, calculated as non-interest expenses divided by total assets; EQASS is a measure of capitalization, calculated as book value of shareholders equity as a fraction of total assets; LNGDP is natural log of gross domestic products; INFL is the inflation rate; OVER_FREE is the overall economic freedom index; BUSI_FREE is the business freedom index; MONE_FREE is the monetary freedom index; FINA_FREE is the financial freedom index; CORR_FREE is the freedom from corruption index.

Values in parentheses are *z*-statistics.

***, **, and * indicates significance at 1, 5, and 10% levels, respectively.

	ONE STEP SYS-GMM						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
CONSTANT	5.073*	-1.291	6.879	-12.792	5.575	-9.484	-4.259
	(1.68)	(-0.20)	(0.42)	(-0.98)	(0.41)	(-1.28)	(-0.47)
				Bank Characteristics			
ROA $_{t-1}$	0.126	0.155*	0.119*	0.152*	0.143**	0.107**	0.115
	(1.19)	(1.79)	(1.65)	(1.75)	(2.32)	(1.96)	(1.43)
LOANS/TA	-0.014	-0.016	0.004	0.004	-0.000	0.002	0.025
	(-0.84)	(-0.72)	(0.19)	(0.15)	(-0.01)	(0.09)	(0.83)
LNTA	-0.130	-0.871***	0.256	-0.248	-0.337	-0.268	-0.059
	(-0.68)	(-2.60)	(0.47)	(-0.42)	(-0.55)	(-0.45)	(-0.09)
LLP/TL	-0.056*	-0.026	-0.009	0.004	-0.002	0.001	0.006
	(-1.67)	(-0.97)	(-0.34)	(0.13)	(-0.09)	(0.04)	(0.15)
NIE/TA	-0.599**	-0.807***	-0.529*	-0.665*	-0.736**	-0.570*	-0.641*
	(-2.22)	(-3.31)	(-1.62)	(-1.74)	(-2.38)	(-1.80)	(-1.86)
EQASS	0.025	0.009	0.0.40	0.012	0.012	0.009	0.063
	(0.90)	(0.27)	(1.08)	(0.29)	(0.28)	(0.23)	(1.49)
				Economic Conditions			
LNGDP		0.591**	-0.771	0.428	-0.015	1.100*	-0.593
		(2.01)	(-0.91)	(0.81)	(-0.04)	(1.71)	(-1.23)
INFL		0.026	-0.019	-0.006	-0.028	-0.112	-0.019
		(0.29)	(-0.19)	(-0.07)	(-0.32)	(-0.86)	(-0.26)
CR3		9.487	11.918	9.478	8.989	0.014	16.262*
		(1.40)	(1.37)	(1.14)	(1.12)	(0.00)	(1.87)
Z-SCORE		0.181**	0.280**	0.250**	0.251**	0.275***	0.280**
		(2.20)	(2.47)	(2.50)	(2.38)	(2.60)	(2.53)
				Economic Freedom			
OVER_FREE			-0.264				
			(-1.16)				
BUSI_FREE				0.078			
				(0.71)			
MONE_FREE					-0.124		
					(-1.20)		
FINA_FREE						0.127**	
						(1.97)	
CORR_FREE							-0.173***
							(-2.58)
Wald χ^2	38.41***	137.76***	999.69***	1169.36***	543.96***	183.61***	237.74***
AR(1) *p*-value	0.893	0.192	0.182	0.171	0.241	0.334	0.027
AR(2) *p*-value	0.457	0.773	0.530	0.966	0.985	0.693	0.243
Sargan *p*-value	0.231	0.878	0.987	0.759	0.858	0.598	0.999
No. of Observations$_{t-1}$	148	111	94	94	94	94	94

Table 5: **Panel Generalized Methods of Moments (GMM) Regression Results**

$$ROA_{jt} = \beta_0 + \beta_1 LOANS/TA_{jt} + \beta_2 LNTA_{jt} + \beta_3 LLP/TL_{jt} + \beta_4 NIE/TA_{jt} + \beta_5 EQASS_{jt} + \beta_6 LNGDP_t + \beta_7 INFL_t + \beta_8 CR3_t + \beta_9 Z\text{-}SCORE_t + \beta_9 OVER\_FREE_t + \beta_{10} BUSI\_FREE_t + \beta_{11} MONE\_FREE_t + \beta_{12} FINA\_FREE_t + \beta_{13} CORR\_FREE_t + \varepsilon_{jt}$$

The notation used in the table below is defined as follows: LOANS/TA is used as a proxy measure of loans intensity, calculated as total loans divided by total assets; LNTA is a proxy measure of size, calculated as a natural logarithm of total bank assets; LLP/TL is a measure of bank risk calculated as the ratio of total loan loss provisions divided by total loans; NII/TA is a measure of bank diversification towards non interest income, calculated as total non-interest income divided by total assets; NIE/TA is a proxy measure for costs, calculated as non-interest expenses divided by total assets; EQASS is a measure of capitalization, calculated as book value of shareholders equity as a fraction of total assets; LNGDP is natural log of gross domestic products; INFL is the inflation rate; OVER_FREE is the overall economic freedom index; BUSI_FREE is the business freedom index; MONE_FREE is the monetary freedom index; FINA_FREE is the financial freedom index; CORR_FREE is the freedom from corruption index.

Values in parentheses are *z*-statistics.

***, **, and * indicates significance at 1, 5, and 10% levels, respectively.

	ONE STEP SYS-GMM				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
CONSTANT	4.095	4.410	10.278	-5.241	6.055
	(0.45)	(0.92)	(1.45)	(-1.23)	(1.44)
	Bank Characteristics				
ROA $_{t-1}$	0.151***	0.140**	0.163***	0.111**	0.194***
	(2.98)	(2.44)	(3.04)	(2.21)	(3.07)
LOANS/TA	-0.001	-0.002	-0.001	0.012	0.009
	(-0.05)	(-0.13)	(-0.05)	(0.85)	(0.48)
LNTA	0.048	0.022	-0.132	0.544**	-0.064
	(0.16)	(0.11)	(-0.48)	(2.07)	(-0.27)
LLP/TL	-0.041	-0.042	-0.038	-0.017	-0.040
	(-1.26)	(-1.33)	(-1.37)	(-0.55)	(-1.42)
NIE/TA	-0.827*	-0.823**	-0.911**	-0.725*	-0.975**
	(-1.71)	(-2.06)	(-2.27)	(-1.76)	(-2.07)
EQASS	0.050**	0.050**	0.043*	0.057***	0.068***
	(2.50)	(2.13)	(1.77)	(2.60)	(3.44)
	Economic Freedom				
OVER_FREE	-0.024				
	(-0.26)				
BUSI_FREE		-0.023			
		(-0.73)			
MONE_FREE			-0.075		
			(-1.39)		
FINA_FREE				0.052**	
				(2.40)	
CORR_FREE					-0.058*
					(-1.62)
Wald χ^2	55.82	59.30	66.63	50.43	93.00
AR(1) *p*-value	0.556	0.584	0.654	0.934	0.505
AR(2) *p*-value	0.470	0.558	0.334	0.859	0.422
Sargan *p*-value	0.126	0.128	0.148	0.151	0.681
No. of Observations$_{t-1}$	129	129	129	129	129

Table 6: **Panel Generalized Methods of Moments (GMM) Regression Results**

$$ROA_{jt} = \beta_0 + \beta_1 LOANS/TA_{jt} + \beta_2 LNTA_{jt} + \beta_3 LLP/TL_{jt} + \beta_4 NIE/TA_{jt} + \beta_5 EQASS_{jt} + \beta_6 LNGDP_t + \beta_7 INFL_t + \beta_8 CR3_t + \beta_9 Z\text{-}SCORE_t + \beta_9 OVER\_FREE_t + \beta_{10} BUSI\_FREE_t + \beta_{11} MONE\_FREE_t + \beta_{12} FINA\_FREE_t + \beta_{13} CORR\_FREE_t + \varepsilon_{jt}$$

The notation used in the table below is defined as follows: LOANS/TA is used as a proxy measure of loans intensity, calculated as total loans divided by total assets; LNTA is a proxy measure of size, calculated as a natural logarithm of total bank assets; LLP/TL is a measure of bank risk calculated as the ratio of total loan loss provisions divided by total loans; NII/TA is a measure of bank diversification towards non interest income, calculated as total non-interest income divided by total assets; NIE/TA is a proxy measure for costs, calculated as non-interest expenses divided by total assets; EQASS is a measure of capitalization, calculated as book value of shareholders equity as a fraction of total assets; LNGDP is natural log of gross domestic products; INFL is the inflation rate; OVER_FREE is the overall economic freedom index; BUSI_FREE is the business freedom index; MONE_FREE is the monetary freedom index; FINA_FREE is the financial freedom index; CORR_FREE is the freedom from corruption index.

Values in parentheses are *z*-statistics.

***, **, and * indicates significance at 1, 5, and 10% levels, respectively.

	ONE STEP SYS-GMM					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
CONSTANT	1.290	-10.061*	-6.400**	1.873	-4.750	0.559
	(0.58)	(-1.73)	(-2.14)	(0.21)	(-1.25)	(0.21)
			Bank Characteristics			
ROA $_{t-1}$	0.530***	0.405***	0.492**	0.456***	0.384**	0.484***
	(3.34)	(2.59)	(2.55)	(2.75)	(2.14)	(3.11)
ROA $_{t-2}$	-0.156**	-0.182***	-0.199***	-0.167***	-0.149**	-0.160**
	(-1.93)	(-3.45)	(-3.46)	(-2.67)	(-2.23)	(-2.31)
LOANS/TA	0.017	0.006	0.024	0.012	0.012	0.015
	(0.57)	(0.22)	(0.70)	(0.45)	(0.51)	(0.52)
LOANS/TA$_{t-1}$	-0.027	-0.003	-0.019	-0.011	-0.003	-0.011
	(-0.89)	(-0.12)	(-0.64)	(-0.43)	(-0.11)	(-0.40)
LNTA	-2.492*	-1.465	-2.223*	-2.686*	-1.361	-3.135*
	(-1.64)	(-0.98)	(-1.84)	(-1.84)	(-0.62)	(-1.77)
LNTA$_{t-1}$	2.582*	1.910	2.649**	2.854**	1.814	3.334*
	(1.63)	(1.26)	(2.05)	(1.98)	(0.87)	(1.85)
LLP/TL	-0.078***	-0.066**	-0.061**	-0.076***	-0.069***	-0.082***
	(-2.84)	(-2.35)	(-2.31)	(-3.53)	(-3.87)	(-4.38)
LLP/TL $_{t-1}$	-0.019	-0.013	-0.026	-0.014	-0.001	-0.014
	(-0.67)	(-0.73)	(-1.35)	(-0.61)	(-0.04)	(-0.55)
NIE/TA	-0.375	-0.044	-0.178	-0.096	-0.090	-0.124
	(-1.09)	(-0.16)	(-0.56)	(-0.30)	(-0.31)	(-0.37)
NIE/TA $_{t-1}$	0.269	-0.020	0.172	0.032	-0.071	0.101
	(0.82)	(-0.05)	(0.39)	(0.07)	(-0.15)	(0.24)
EQASS	0.077**	0.076***	0.074**	0.087***	0.085***	0.087***
	(2.42)	(2.89)	(2.54)	(2.98)	(3.29)	(2.97)
EQASS $_{t-1}$	0.009	0.027	0.030	0.013	0.022	0.022
	(0.24)	(0.77)	(0.81)	(0.38)	(0.68)	(0.56)
			Economic Freedom			
OVER_FREE		0.113*				
		(1.61)				
BUSI_FREE			0.057**			
			(2.03)			
MONE_FREE				-0.026		
				(-0.34)		
FINA_FREE					0.031	
					(1.06)	
CORR_FREE						-0.023
						(-0.80)
Wald χ^2	567.29***	1685.09***	2902.11***	3870.54***	1471.55***	1070.45***
AR(1) *p*-value	0.049	0.057	0.047	0.035	0.099	0.038
AR(2) *p*-value	0.465	0.152	0.202	0.097	0.378	0.181
Sargan *p*-value	0.219	0.229	0.306	0.061	0.049	0.114
No. of Observations$_{t-2}$	111	98	98	98	98	98