

DETERMINANTS OF PROFITABILITY IN ISLAMIC BANKS: SOME EVIDENCE FROM THE MIDDLE EAST[#]

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The paper analyzes how bank characteristics and the overall financial environment affect the performance of Islamic banks. Utilizing bank level data, the study examines the performance indicators of Islamic banks across eight Middle Eastern countries between 1993 and 1998. A variety of internal and external banking characteristics were used to predict profitability and efficiency. In general, our analysis of determinants of Islamic banks' profitability confirms previous findings. Controlling for macroeconomic environment, financial market structure, and taxation, the results indicate that high capital-to-asset and loan-to-asset ratios lead to higher profitability. The results also indicate that foreign-owned banks are likely to be profitable. Everything remaining equal, the regression results show that implicit and explicit taxes affect the bank performance and profitability negatively while favorable macroeconomic conditions impact performance measures positively. Our results also indicate that stock markets and banks are complementary to each other.

1. INTRODUCTION

The steady expansion of Islamic banks has been the hallmark of the Middle East financial landscape in the 1980s and 1990s. With a network that spans more than 60 countries and an asset base of more than \$200 billion, Islamic banks are now playing an increasingly significant role in their respective markets. To this end,

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Islamic banks are rapidly gaining market shares in their domestic economies¹ and their presence in highly sophisticated markets exemplifies the empirical success of the viability of eliminating fixed interest payments from financial transactions. Indeed, consolidation among banks, rising competition and continuous innovation to provide financial services, all contribute to a growing interest in a detailed critical evaluation of Islamic banks.

Based on their charters, Islamic banks have the flexibility of becoming shareholders and creditors of firms, as well as the advantage of providing investment-banking services. A comprehensive evaluation of the performance of Islamic banks is, therefore, essential for managerial as well as regulatory purposes. From managerial perspective, interactions between different performance measures must be taken into consideration in order to maximize the value of the bank. While managers are keen to determine the outcomes of previous managerial decisions, bank regulators are concerned about the safety and soundness of the banking system and with preserving public confidence. Among other things, they monitor banks' performance to identify banks that are experiencing severe solvency problems. Depositors may also be interested in how well their banks are doing since they are not entitled to fixed returns and the nominal values of their deposits are not guaranteed. Without persistent and careful monitoring of performance, existing problems could remain unnoticed and eventually lead to the likelihood of failure of the financial system. In the light of these developments, it has become important to assess the strengths and vulnerabilities of Islamic banks, taking into consideration various internal (balance sheet and income statement) and external (economic and financial) characteristics. Analyzing these indicators is expected to help us understand the current state of the Islamic banking industry.

Although studies on the issues underlying interest-free financing date back to the early 1980s, (see Ahmed 1981, Karsen 1982), the issues of viability of Islamic banks and their ability to mobilize savings, pool risks and facilitate transactions have received little coverage in the existing literature. Some studies, however, have focused on the policy implications of eliminating interest payments [Khan (1986), Khan and Mirakhor (1987), and Bashir *et. al.* (1996)]. Indeed, the lack of complete data impeded any comprehensive analysis of the experience of the last three decades. The empirical work done so far has yielded less satisfying and inconclusive results [see, Bashir, Darrat and Suliman (1993), Bashir (1999)]. Yet, the recent trends of globalization and financial liberalization have created new challenges and new realities for Islamic banks. For example, the complexity of the integration of financial markets has put Islamic banks into a fierce competition for deposits in both domestic and global markets. Accordingly, Islamic banks were forced to design and develop new and Islamically acceptable instruments that could

¹ Their market share has grown from around two percent in the 1970s to around fifteen percent in the 1990s, see Aggarwal and Yousef (2000).

appeal to their customers while coping with continuous innovations in financial markets. In addition, Islamic banks have to find investment opportunities (for fund mobilization and utilization) that generate competitive rates of return for their clients at an acceptable degree of risk.

This paper intends to analyze how bank characteristics and the overall financial environment affect the performance of Islamic banks. Specifically, the purpose of the study is to closely examine the relationship between profitability and the banking characteristics, after controlling for economic and financial indicators. The intention is to identify which characteristics, among the potential determinants of performance, appear to be important. By studying the connection between Islamic banks' profitability and the efficiency indicators, this paper contributes to the ongoing discussion on the impact of deregulation and liberalization on the performance of the banking sector. In the meantime, the paper also attempts to add to the existing literature in several ways. First, by utilizing bank level data, the paper provides summary statistics pertaining to Islamic banks' size and profitability. Second, the paper uses empirical analysis to determine the underlying determinants of Islamic bank's performance². To this end, comprehensive sets of internal and external characteristics were examined as determinants of banks' net margins and profitability³. Specifically, the internal characteristics examined include bank size, leverage, loans⁴, short term funding, overhead and ownership. Third, while studying the relationship between banks' internal characteristics and performance, the paper controls the impact of external factors, such as macroeconomic, regulatory and financial market indicators. Among the external factors controlled, taxes, and the stock market capitalization were not included in previous studies of Islamic banks. Furthermore, some of the determinants were also interacted with the country's GDP per capita to check the impact of the level of income on bank performance. Finally, the results showed that it is possible to conduct a meaningful assessment of Islamic banks' performance despite the existence of substantial differences in regulations, economic conditions, and financial development between the countries in the sample.

The rest of the paper is organized in five sections. Section 2 gives an overview of some important economic and financial indicators in the sample countries. Section 3 identifies the data sources and defines the variables used in the regression

² Since both shareholders and depositors in Islamic banks are the residual claimants of the bank's profits, bank profitability is the designated measure of bank performance.

³ The literature divides bank profitability determinants to internal and external measures. Internal factors are areas of bank management that the officers and staff of the bank have under their immediate control. By contrast, external factors are environmental aspects of the bank's market over which management has no direct control (Bourke, 1989, Molyneux and Thornton, 1992).

⁴ The word "Loan" is used generically to mean profit-loss-sharing (PLS) or equity financing.

estimation. In section 4, we formulate the model and discuss the possible links between bank performance and the set of internal and external indicators. Section 5 represents the empirical results, and conclusions are given in section 6.

2. THE FINANCIAL AND REAL SECTORS: AN OVERVIEW

The countries in the sample differ on their initial conditions of development and income distribution. Table 1 provides averages of some macroeconomic indicators, taxes, stock market capitalization and bank profitability. Column 2 of Table 1 provides information on per capita GDP in each country in the sample. This column reveals a wide diversity in economic development: the gross domestic product (GDP) per capita for 1995 ranges from \$16,592 for Kuwait to only \$264 for Sudan. Countries in the sample can, therefore, be classified according to their GDP per capita, whereby Bahrain, Kuwait, Qatar, and U.A.E. can be classified as high income, Egypt, Jordan, and Turkey as middle income, and Sudan as low income. The diversity in income distribution is reflected on the percentage growth rates shown in column 3. With the exception of Kuwait and U.A.E., all the economies experienced positive growth in per capita GDP during the sample period. The countries in our sample also differ in their inflationary experience (column 4). For example, Sudan and Turkey experienced high-inflation rates during the study period (over 80 percent). However, inflation figures seem to be less of a concern in high-income countries like Bahrain and Kuwait.

Column 5 of Table 1 depicts the percentage ratio (%) of stock market capitalization to GDP, (MCAP). MCAP is used here as a proxy for stock market development. MCAP measures the ability of the stock market to allocate capital to investment projects and its ability to provide significant opportunities for risk diversification to investors. Since stock markets are not well developed in the countries in our sample, the ratio of market capitalization to GDP is either negligible or missing for four countries. Yet, in the three economies where stock markets are classified as emerging, namely, Egypt, Jordan and Turkey, the ratio of market capitalization to GDP is high. Well-developed capital markets are expected to enhance the performance of Islamic banks, whereby Islamic banks will be able to trade their equity shares and increase their capital requirements. More capital can translate into higher earnings to the customers and shareholders (Berger, 1995). Furthermore, stock markets provide banks with liquidity and with opportunities to diversify their portfolios (Demirguc-Kunt and Maksimovic, 1996).

The average bank size (measured in millions of dollars of total assets) is shown in column 6. It is evident that banks in rich countries are larger in size. Large size is expected to promote economies of scale and reduce the cost of gathering and processing information (Boyd and Runkle, 1993). In general, large-sized banks have the advantage of providing a larger menu of financial services to their customers, and hence mobilize more funds (Bashir, 1999). Columns 6 and 7 of

Table 1 display tax indicators. The TAX variable indicates the explicit (average) tax rate levied on each bank in a specific country. The reserve-to-GDP ratio (RES) reflects implicit taxes due to reserve and liquidity restrictions. Together, the explicit and implicit taxes reveal the degree of financial repression practiced in respective countries. It seems natural that banks in oil-rich countries face lower or no taxes on their profits. In contrast, banks in low-income countries, like Jordan and Sudan, suffer from high taxes (both implicit and explicit). More often than not, higher taxes translate into lower profitability as shown in the last column of Table 1. Meanwhile, the figures in column 8 are mixed, where the average BTP/TA ratios range between 0.77 for Jordanian banks and 7 for Turkish banks during the sample period. Generally speaking, banks in oil-producing countries display relatively large BTP/TA than their counterparts in non-oil producing countries.

Table 1**Macroeconomic and Financial Structure Indicators: Selected Aggregates**

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Country	(1) GDPPC US\$	(2) GDPGR (%)	(3) INF (%)	(4) MCAP (%)	(5) ASST US\$ m	(6) TAX (%)	(7) RES (%)	(8) BTP/TA (%)
Bahrain	\$9,956	0.89	0.98	41.39	297	19.68	7	2.46
Egypt	1,064	9.86	8.66	4.02	1190.3		19.2	
Jordan	1,195	2.35	3.96	75.07	875.3	37.78	48.07	0.77
Kuwait	16,592	-0.6	1.66	23.62	4713.6		1.87	2
Qatar	14,943	3.24	2.72		444		4.62	1.22
Sudan	364	10.87	80.29		64	44.28	25.28	1.65
Turkey	1,567	3.8	85.19	13.16	335.5	7.42	26.53	7.08
U.A.E.	7,056	-0.25			1459.5		14.76	2.99

Source: Author's calculations.

Notes: Financial Structure averages are calculated for each bank and then averaged over the country's sample period (1993-98). Data for financial variables were compiled from Bank Scope. Macroeconomic indicators for each country are averaged over the sample period. The data source is the Yearbook of International Financial Statistics (2000), IMF.

3. THE DATA AND VARIABLES

The data used in this study are cross-country bank-level data, compiled from income statements and balance sheets of 14 Islamic banks in eight countries for each year in the 1993-1998 period⁵. A brief description of how the variables are constructed is given in Table 2 below.

⁵ The names of the banks, their years of establishment, and countries of origin are given in the Appendix.

Table 2
Variable Definitions and Sample Means

Symbol	Definition
Dependent Variables (1993-98)	
BTP/TA	Before Tax Profit: ratio of before tax profit to total assets
ROA	Net Income divided by total assets
ROE	Ratio of net income to total equity
Exogenous Variables (1993-98)	
Bank Characteristic Indicators:	
EQTA	Book value of equity (assets-liabilities) over total assets
LONTA	Ratio of (PLS)loans to total assets
NIEATA	Ratio of none-interest earning assets to total assets
CSTFTA	Ratio of consumer & short term funds to total assets
OVRHD	Ratio of overhead to total assets
LATA	Ratio of Total Liabilities to total assets
FRGN	Dummy: equal one if a bank has at least 50 percent foreign ownership.
EQAGDP	Interaction variable = EQTA x GDPPC (defined below)
LONGDP	Interaction variable = LONTA x GDPPC
NIEAGDP	Interaction variable = NIEATA x GDPPC
CSTFGDP	Interaction variable = CSTFTA x GDPPC
OVRGDP	Interaction variable = OVRHD x GDPPC
FRNGDP	Interaction variable = FRGN x GDPPC
Macroeconomic Indicators:	
GDPPC	Real GDP per capita (in constant US \$, 1995)
GDPGR	Annual growth rate of real GDPPC
INF	Annual Inflation rate
Taxation Indicators:	
RES	Reserves of the banking system (IFS line 20) over deposits of the banking system (IFS line 24+25)
RESGDP	Interaction variable = RES x GDPPC
TAX	Total taxes paid divided by before tax profits for each bank
TXAGDP	Interaction variable = TAX x GDP
Financial Structure Indicators:	
BNK	Ratio of total assets of the deposit money banks (IFS line 22a through 22f) divided by DGP
MCAP	Ratio of stock market capitalization to GDP
MCPGDPPC	Interaction between stock market capitalization and GDP = MCAP x GDPPC
MCPBNK	Market capitalization divided by total assets of the deposit of banks
BNKGDP	Interaction variable = BNK x GDPPC
MCPBKGDPPC	Interaction variable = MCPBNK x GDPPC
ASST	Bank's Total Assets (in constant US \$million, 1995)

Source: Author's calculations.

The main data source is Bank Scope database compiled by IBCA. In as far as possible, the Bank Scope database converts the data to common international standards to facilitate comparisons. Other data sources include International Monetary Fund's International Financial Statistics (IFS), and the IFC's Emerging Markets Database.

4. DETERMINANTS OF ISLAMIC BANKS' PROFITABILITY

To examine the relationship between the performance of Islamic banks and the set of internal and external banking characteristics, we formulate a formal model reflecting the relationship between bank performance and bank's internal and external indicators. Since the ultimate objective of management is to maximize the value of the shareholder's equity, an optimal mix of returns and risk exposure should be pursued in order to increase the profitability of the bank. Hence, a comprehensive plan to identify objectives, goals, budgets, and strategies should be developed by the bank management. The planning should encompass both internal and external performance dimensions. Because of increasing innovations and deregulation in the financial services industry, internal and external competitiveness is becoming a critical factor in evaluating performance. While internal performance is evaluated by analyzing financial ratios, external performance is best measured by evaluating the bank's market share, regulatory compliance, and public confidence. However, due to data unavailability, no attempt has been made in this paper to analyze the effects of market shares or public confidence.

The operating efficiency and profitability measures used as criteria for performance, are specified below. Whereas capital ratios, leverage, overhead, loan and liquidity ratios, and foreign ownership are used as proxies for the bank's internal measures, macroeconomic indicators, taxation, financial structure, and country dummies are used to represent the external measures. A linear equation, relating the performance measures to a variety of financial indicators is specified⁶. The subsequent regression analysis starts from estimating the following basic equation:

$$I_{ijt} = \alpha_0 + \alpha_i B_{it} + \beta_j X_{jt} + \gamma_t M_{jt} + \delta_j C_j + \varepsilon_{ijt} \quad (1)$$

where, I_{ijt} = is the measure of performance (either before tax profit margin, ROA, or ROE) for bank i in country j at time t ; X, M, C are vectors of different variables where B_{it} are bank variables for bank i in country j at time t ; X_{jt} are country variables for country j at time t ; M_{jt} are stock market variables in country j at time

⁶ No specification test is used here to support using the linear function. However, the linear functional form is widely used in the literature and produces good results (see Short, 1979, and Bourke, 1989).

t, and C_j are country dummy variables⁷. α_0 is a constant, and $\alpha_i, \beta_j, \gamma_i$ and δ_j are coefficients, while ε_{ijt} is an error term. Although the primary focus of this paper is on the relationship between performance and internal variables, the inclusion of macroeconomic variables, stock market variables, and the country dummies is meant to account for other factors that might affect bank performance. Several specifications of equation (1), with the basic specification including the set of control variables (i.e., bank-level variables and macroeconomic indicators), are estimated.

4.1 Measures of Performance

Evaluating bank performance is a complex process that involves assessing interaction between the environment, internal operations and external activities. The primary method of evaluating internal performance is analyzing accounting data. In general, a number of financial ratios are usually used to assess the performance of financial intermediaries. Financial ratios usually provide a broader understanding of the bank's financial condition since they are constructed from accounting data contained in the bank's balance sheet and financial statement. Another key management element that many studies have found to be a primary factor in assessing bank performance is operating efficiency. In measuring efficiency, both *ex ante* and *ex post* spreads can be used to provide information on cost control. Generally speaking, *ex ante* spreads are calculated from the contractual rates charged on loans and rates paid on deposits. In contrast, however, the spread for the Islamic banks can be calculated from the rates of return generated from various non-interest banking activities, including participation in direct investment. As an efficiency indicator, we use the *ex post* spreads consisting of revenues generated from Islamic banking operations such as *murabahah* (markup), *ijarah* (rent-to-own), *bay' mu'ajjal* (deferred sale), and service charges, minus the expenses of carrying such activities⁸. Accounting values from the bank's financial statement were used to compute the *ex post* spread and profitability measures employed in this study.

Three measures of performance are used in this study: the profit margin (BTP/TA), return on assets (ROA), and return on equity (ROE). The BTP/TA is defined as the net income accruing to the bank from non-interest activities (including fees, service charges, foreign exchange, and direct investment) divided by total assets. Non-interest income has grown in importance as a source of revenue for conventional banks in the 1990s. For conventional banks, some of the

⁷ Three dummy variables, HI, MI, and LI, indicating high income, middle income and low income are used.

⁸ The *ex post* spreads on conventional banks consist of the difference between banks' interest revenues and their actual interest expenses.

fastest growing non-interest income items include ATM surcharges, credit card fees, and fees from the sale of mutual funds and annuities. For Islamic banks, all income is supposed to be non-interest income and hence coincides with total operating income. Moreover, since the returns on Islamic banks' deposits are contingent on the outcomes of the projects that banks finance, BTP/TA reflects the management's ability to generate positive returns on deposits and captures the bank's ability to reduce the risk of insolvency⁹. If banks were able to engage in successful non-loan activities and offer new services, non-interest income will increase overtime (Madura, 2000).

BTP/TA reflects the banks' ability to generate higher profits by diversifying their portfolios. Goldberg and Rai (1996) used the net non-interest return as a rough proxy for bank efficiency¹⁰. Since large size (scale) enables banks to offer a large menu of financial services at lower costs, positive relationships between BTP/TA and the explanatory variables in equation (1) will give support to the efficient-structure hypothesis.

Other measures of overall performance are ROA and ROE. Both measures are closely tied to the key item in the income statement; net income. ROA and ROE have been used in most structure-performance studies and are included here to reflect the bank's ability to generate income from non-traditional services. ROA shows the profit earned per dollar of assets and most importantly, reflects the management's ability to utilize the bank's financial and real investment resources to generate profits. For any bank, ROA depends on the bank's policy decisions as well as uncontrollable factors relating to the economy and government regulations. Many regulators believe return on assets is the best measure of bank efficiency. ROE, on the other hand, reflects how effectively a bank management is using shareholders' funds. A bank's ROE is affected by its ROA as well as by the bank's degree of financial leverage (equity/ asset). Since returns on assets tend to be lower for financial intermediaries, most banks utilize financial leverage heavily to increase return on equity to a competitive level.

4.2. Bank Characteristics

To assess the relationship between performance and internal bank characteristics, our analysis utilizes several bank ratios. These supplemental measures are particularly useful for a comprehensive understanding of the factors

⁹ The bank's before-tax profit over total assets (*BTP/TA*) is used as a measure of the bank's profit margin. This measure is computed from the bank's income statement as the sum of income over total assets minus overhead over total assets minus loan loss provision over total assets minus other operating income.

¹⁰ Since the operations of Islamic banks are generally risky, any change in the perceived risks faced by the bank will necessarily be reflected on this margin.

underlying a bank's net margins and the quality of bank management. The set of ratios used comprises funds sources management (CSTFTA), funds uses management (OVRHD and NIEATA), leverage and liquidity ratios (EQTA and LOANTA), risk (LATA) and a dummy variable for ownership (FRGN). Each one of these determinants, except the risk variable, was interacted with GDP per capita to capture the effects of GDP on bank performance. The capital ratios have long been a valuable tool for assessing safety and soundness of banks. Bank supervisors use capital ratios as rules of thumb to gauge the adequacy of an institution's level of capital. In the U.S., minimum capital ratios have been required since 1981. Since capital management is related to dividend policy, banks generally prefer to hold the amount of capital that is just sufficient to support bank operations. Starting 1988, the Basle Accord has imposed uniform capital ratio standards on banks internationally.

Previous studies of the determinants of bank profitability in the United States found a strong and statistically significant positive relationship between EQTA and profitability. This supports the view that profitable banks remain well capitalized; or the view that well capitalized banks enjoy access to cheaper (less risky) sources of funds with subsequent improvement in profit rates (see Bourke, 1989). A positive relationship between the ratio of bank loans to total assets, LOANTA, and profitability was also found from using international database (Demirguc-Kunt and Huizinga, 1997). Bank loans are expected to be the main source of revenue, and are expected to impact profits positively. However, since most of the Islamic banks' loans are in the form of profit and loss sharing (loans with equity features), the loan-performance relationship depends significantly on the expected change of the economy. During an economic expansion, only a small percentage of the PLS loans will default, and the bank's profit will rise. On the other hand, the bank could be severely damaged during a weak economy, because several borrowers are likely to default on their loans. Ideally, banks should capitalize on favorable economic conditions and insulate themselves during adverse conditions.

Since the bulk of the earnings of Islamic banks come from non-conventional activities, the ratio of non-interest earning assets to total assets, NIEATA, is expected to impact profitability positively. The ratio of consumer and short-term funding to total assets, CSTFTA, is a liquidity ratio that comes from the liability side. It consists of current deposits, saving deposits and investment deposits. Since liquidity holding represents an expense to the bank, the coefficient of this variable is expected to be negative.

In general, Islamic banking operations are characterized by a high degree of financial risks. In the absence of guaranteed returns or deposit insurance, Islamic banks undertake risky operations in order to be able to increase expected profits and generate comparable returns for their customers. However, if the bank management takes too much risk, bank depositors may become concerned about

the safety of their deposits and may remove their deposits, creating a liquidity crisis for the bank. Further, if the bank regulators believe that the management actions are imprudent, they may intervene to examine its operations. On the other hand, if the bank's management takes very little risk, the bank would not be very profitable. Hence the management should balance the trade-off between safety and profitability. We use the ratio of total liabilities to total assets (LATA) as a proxy for risk¹¹. Using LATA adds a greater depth in understanding the risks a bank takes when trying to obtain higher returns. First, a higher risk ratio is an indicator of lower capital ratio or greater leverage. A lower capital ratio may trigger safety and public confidence concerns for the respective bank. Besides, a lower capital ratio indicates less protection to depositors whose bank accounts are not fully insured. Second, when a bank chooses to take more capital risk (assuming this is allowed by its regulators), its leverage multiplier and return on equity, *ceteris paribus*, will increase. In the absence of deposit insurance, high risk-taking will expose the bank to the risk of insolvency. Therefore, the sign of coefficient of LATA may be negative or positive.

The ratio of overhead to total assets, OVRHD, is used to provide information on variation in operation costs across the banking system. It reflects employment, total amount of wages and salaries as well as the cost of running branch office facilities. A high OVRHD ratio is expected to impact performance negatively because efficient banks are expected to operate at lower costs. On the other hand, the usage of new electronic technology, like ATMs and other automated means of delivering services, has caused the wage expenses to fall (as capital is substituted for labor). Therefore, a lower OVRHD ratio may impact performance positively. Meanwhile, the interaction variable OVRGDP captures the effects of both overhead and GDP on the performance measures. The sign of the coefficient of this variable is not restricted. Lastly, the binary variable representing foreign ownership, FRGN, and its interaction with GDP, FRNGDP, are expected to impact profitability positively, indicating that foreign banks benefit from tax breaks and other preferential treatments.

4.3 The Control Variables

To isolate the effects of bank characteristics on performance, it is necessary to control for other factors that have been proposed in the literature as possible determinants of profitability. Four sets of variables are expected to be external to the bank: the macroeconomic environment, the financial market structure, the regulation indicators, and country (dummy) variables. The economic conditions

¹¹ It is to be noted that some deposits of Islamic banks include investment, saving, and demand deposits. Investment deposits are not exactly liabilities to the bank since their nominal value is not guaranteed. Hence, the ratio LATA should generally be lower than it appears to be.

and the specific market environment would obviously affect the bank's mixture of assets and liabilities. We introduce these indicators in order to see how they interact with each other and how they affect bank performance. Three indicators are used as proxies for macroeconomic conditions: GDP per capita (GDPPC), the rate of growth of GDP (GDPGR), and inflation (INF). The GDP per capita variable, GDPPC, is expected to have an effect on numerous factors related to the supply and demand for loans and deposits. It is conjectured in this paper that GDPPC affects performance measures positively. Intuitively, at higher income, people tend to save more and banks would be able to mobilize more resources. Hence, they finance more investment projects and are likely to generate more profits. Moreover, since most of the countries in the sample are characterized as low or middle income, banks in these countries are expected to operate oligopolistically and are, therefore, expected to generate higher profit margins.

On the other hand, a bank's growth and profitability is limited by the growth rate of the economy. If the economy is growing at a good rate, a soundly managed bank would profit from loans and securities sales. Islamic banks particularly would be financing more trade-related activities. Conversely, most of bank failures occur during the time of economic distress. The association between economic growth and the financial sector performance is well documented in the literature (see Demirguc-Kunt and Maksimovic, 1996). Economic growth can enhance bank's profitability by increasing the demand for financial transactions, i.e., the household and business demand for loans. During periods of strong economic growth, loan demand tends to be higher, allowing an Islamic bank to provide more PLS loans. Strong economic conditions are also characterized by high demand for financial services, thereby increasing the bank's cash flows, profits and non-interest earnings. Accordingly, fewer PLS loans would be defaulted during strong economic conditions. Thus, we expect the growth variable, GDPGR, to have positive impact on performance.

Previous studies have also revealed a positive relationship between inflation (INF) and bank profitability (Bourke, 1989). For conventional banks, high inflation rates generally lead to higher loan rates, and hence higher revenues. However, in the case of Islamic banks, inflation may impact performance positively if a larger portion of Islamic banks' profits accrues from direct investment, shareholding and/or other trading activities (*murabahah*). Yet, inflation may have a negative effect on bank profitability if wages and other costs (overhead) are growing faster than the rate of inflation.

One of the most important industry characteristics that can affect a commercial bank's profitability is regulation. If regulators reduce the constraints imposed on banks, banks may undertake more risky operations. When banks taking on the higher degree of risk are profitable, depositors and shareholders gain. On the other hand, when banks fail, depositors lose. To incorporate the impact of prudential

surveillance and supervision, we used the required reserves of the banking system (RES), the corporate tax rate (TAX), and their interactions with GDP, RESGDP, and TXAGDP respectively, as proxies for financial regulation¹². Although prudential supervision of Islamic bank is just as necessary and desirable as it is in conventional banks, the traditional regulatory measures are not always applicable to Islamic banks. Many Islamic economists argue that Islamic banks should be exempted from reserve requirements because imposing required reserves ratio penalizes Islamic banks twice. First, required reserves do not generate any income to the bank. Second, required reserves also reduce the amount of funds deposited specifically for PLS financing. Hence, the severity of required reserve tax depends on the opportunity cost of holding reserves which, in turn, depends on the conditions of the financial market. While the corporate tax is a pure profit tax, the reserve tax is distorting. Nonetheless, we use reserve requirements and taxes as proxies for regulation because almost all Islamic banks operate in an environment where these traditional supervisory measures are used. Both implicit and explicit taxes are expected to impact profits negatively¹³. However, the correlation between the interaction variables, RESGDP and TXAGDP, and the performance measures is ambiguous.

Studies of financial structure for the banking industry relate performance to several market constraints. Competition from other providers of financial services and from the stock market may influence bank's operations. In this study, we use the ratio of stock market capitalization to GDP (MCAP) to measure the influence of the financial market on bank's performance. It is worthy to note, however, that financial and capital markets are still at the initial stages of development in the countries in our sample. On the other hand, the size of the banking system (BNK), comprising the ratio of total assets of the deposit money bank to GDP, is used to measure the importance of other financial competitors in the economy. Both variables are expected to impact performance negatively. Furthermore, MCAP and BNK are also interacted with GDP and with each other. The interaction between MCAP and BNK may reflect the complementarity or substitutability between bank and stock market financing. Finally, ASST (total assets), is used to control for cost differences related to bank size and for the greater ability of larger banks to diversify. This factor may lead to positive effects if there are significant economies of scale. However, it may also have negative effects, if increased diversification leads to higher risks and lower returns.

¹² In general, bank regulations include capital requirements, restrictions on branching, and asset holdings.

¹³ Theoretically, Islamic banks' deposits are not supposed to be subject to reserve requirement. Therefore, the direction of effect of RES on profitability is unclear.

5. EMPIRICAL RESULTS

This section presents and analyzes the regression results. The data from the sample of 14 Islamic banks are pooled for all six years (1993-98) and used to replicate and extend earlier research (Bashir, 1999). Different specifications of equation (1) were estimated, with the basic specification including the bank-level variables. As stated above, in addition to bank-level variables, the explanatory variables used include control variables like financial structure variables, taxation variables, and macroeconomic indicators. The estimation technique used is panel data methods and the White (1980) procedure is used to ensure that the coefficients are heteroskedastic¹⁴.

The results in Table 3 relate to regressing BTP/TA on the set of performance and control measures¹⁵. Column 1 estimates the relation between profitability and bank characteristics and the taxation variables. The data revealed that both EQTA and LOAN have strong and robust link with profitability, confirming previous findings. The results show that, every dollar spent on loans generates two (2) cents of profits, while a dollar added to capital equity ratio translates into more than four dollars of profit. The positive and statistically significant relationships can serve as leading indicators of higher future profits. Intuitively, as Islamic banks become less leveraged and their loans-to-assets ratios increase, they become more profitable. Conversely, as they become highly leveraged, their vulnerability to macroeconomic shocks increases; precipitating into losses and fewer profits. However, when these variables were interacted with GDP, the signs of the association changes to inverse relationship but remained statistically significant. The negative coefficient on the interaction variable can be interpreted such that, in higher income countries Islamic banks are highly leveraged, their cost of capital is high and they are, therefore, less profitable. The coefficients for EQTA and LOAN and their respective interaction variables EQAGDP and LOANGDP together indicate how EQTA and LOAN affect bank profitability in countries with different income levels.

¹⁴ The use of panel data has a number of advantages. First, it provides an increased number of data points and generates additional degrees of freedom. Second, incorporating information relating to both cross-section and time-series variables can substantially diminish the problems that arise from omitted variables.

¹⁵ Note that the coefficients for the dummy variables turned out to be statistically insignificant and, hence are not reported.

Table 3
Determinants of Islamic Banks' Performance and Profitability.
Dependant Variable: BTP/TA

Variable	1	2	3	4
EQTA	4.129 (2.619*)	1.204 0.836	7.454 (1.676***)	0.532 (2.476**)
EQAGDP	-2.15E-04 (1.663***)	2.06E-04 0.015	2.27E-03 (5.789*)	-4.93E-03 (2.305***)
LOAN	2.30E-02 (1.467***)	0.019 1.27	0.014 (3.898*)	
LONGDP	-1.46E-03 (2.305**)	-4.07E-04 (1.622***)	1.10E-05 0.056	-1.22E-03 (3.000**)
CSTF	-0.036 1.112	0.016 0.454	0.016 (2.798**)	0.029 0.732
CSTFGD	1.14E-03 (1.606***)	-1.62E-03 (1.846**)	-4.23E-04 1.028	
NIEATA	-0.032 (1.436***)	0.563 0.204	-0.065 (3.378*)	-0.156 (2.717**)
NIEGDP	-7.60E-04 0.675	-1.18E-03 0.586	7.18E-04 1.23	
OVRHD	0.072 0.596	0.077 0.763	0.029 0.283	
OVRGDP	8.45E-03 (2.325**)	-3.17E-03 1.133	5.95E-03 (2.351**)	
FRGN	-0.266 0.299	1.291 (1.757**)	6.492 (18.528*)	
FRGN GD	5.11E+02 (1.662***)	-5.30E-04 (1.350***)	-1.48E-03 (14.364*)	
LATA	4.242 (2.688*)	1.136 0.789	7.328 (1.652***)	
GDPPC		1.82E-01 (2.081**)		
GDPGR		3.47E-03 0.457		9.53E-03 0.963

Variable	1	2	3	4
INF		0.027 (3.217*)		0.121 (5.045*)
RES	-0.053 -1.297			
RESGDP	-1.25E-03 0.627			4.04E-03 (7.581*)
TAX	-0.018 0.952			0.041 (2.046***)
TXAGDP	-7.07E+02 (2.960*)			9.65E-06 0.038
ASST			-1.22E-04 0.947	1.31E-03 0.369
MCAP			-7.40E-01 0.768	0.198 (3.119**)
MCAPGD			6.95E-04 1.112	-1.10E-02 (4.415*)
BNK			0.021 (2.332**)	0.05 0.812
BNKGD			1.08E-04 0.301	
MCPBNK			0.01 (1.860**)	-0.115 (4.141*)
MCPBKG				6.47E-03 (4.745*)
C	-416.611 2.636	-116.669 .0.809	-736.734 1.659	-12.83 3.428
N	46	66	29	20
Adj RSQ	0.6	0.41	0.98	0.99

* Significant at the 1 percent level
 ** Significant at the 5 per cent level
 *** Significant at the 10 per cent level
 t-Statistics in parentheses.

Short-term and consumer funding, CSTFTA, has the predicted negative association with BTP/TA, although statistically insignificant. However, when interacted with GDP, its impact on profit became positive and statistically significant. Other meaningful determinants of profitability include NIETA, OVRGDP, FRGNGDP, and LATA. The strong positive association between the risk indicator, LATA, and BTP/TA should be emphasized. Apart from revealing the importance of leverage in the practice of Islamic banks, it indicates that Islamic banks have incentives to undertake more risks. Column 1 also shows the negative impact of taxes on profitability of Islamic banks. As expected, Islamic banks pass the higher taxes over to their customers and shareholders in terms of smaller profits.

Column 2 of Table 3 shows the results of regressing BTP/TA on bank level variables after controlling for the macroeconomic environment. The internal banking characteristics impacting BTP/TA include the interaction of loan with GDP (LOANGDP), the interaction of consumer and short term funding with GDP (CSTFGDP), the ownership dummy, FRGN, and its interaction of ownership with GDP (FRGNGDP), plus the risk variable, LATA. The impact of both EQTA and LOANTA is still positive but statistically insignificant. Regression 2 also reveals the strong positive impacts of GDPPC and INF on profitability as expected. Intuitively, as the level of income in a country increases, the demand for bank services increases. Hence, banks mobilize more funds and their profits increase. Further, GDPPC is an indicator of economic development, and thus it reflects the degree of sophistication in bank technologies. The robust association between profitability and the INF variable indicates that banks generate higher profits in an inflationary environment. Meanwhile, the growth variable, GDPGR, has a positive but not statistically significant impact on profit margins.

Column 3 introduces the financial structure variables. Market structure refer here to the number and/or size of the financial institution (s). These variables are important as proxies for market power and bank efficiency. The market capitalization variable, MCAP, has a negative but statistically insignificant relationship with BTP/TA. This result can be attributed to the fact that stock markets in the region are in their early stages of development and, hence, have no significant impact on banks. Column 3 also shows a strong positive association between BTP/TA and BNK, BNKGDP and MCPBNK. Regression 3 further reveals that, for a given financial structure, the profit margin is impacted positively by EQTA, EQAGDP, LOAN, OVRGDP, FRGN, and LATA, and negatively by CSFT, NIE, FRGNGDP.

Column 4 combines all the determinants and shows slight changes in the coefficients. The equity ratio, EQTA, maintains its strong positive impact and so does inflation, INF, the market structure variables, MCAP, MCPBNK, and the tax rates, RESGDP and TAX. All other statistically significant variables have negative

impact. The much higher values of R^2 in columns 3 and 4 suggest that profit is much more stable and predictable than in the previous two regressions.

Tables 4 and 5 present the results of regressing ROA and ROE on bank characteristics and the rest of the control variables. Since both ROE and ROA are efficiency measures, only the ROE results are discussed. Column 1 in Table 4 indicates that EQTA, EQAGDP, and LOANTA have no meaningful association with ROE, although they have the predicted signs. This result is intuitive since high capital ratio is expected to lead to lower returns on equity. However, the interaction between loan and GDP indicates that the level of income does affect the returns to equity. Moreover, for given tax rate and reserve ratios, ROE seemed to be determined by LOANGDP, CSTF, CSTFGDP, NIEA, NIEAGDP, OVRHD, OVRGDP, FRGN and FRNGDP. The results further show the negative effects of taxes on ROE.

When the macroeconomic indicators are introduced in column 2, the regression results slightly change. The interaction variables LOANGDP, OVRHD, LATA and FRNGDP are now positively correlated with ROE and statistically significant. In addition, inflation, INF, and GDPGR continue to have strong associations with ROE. Column 3 of Table 6 shows the regression results after adding the financial variables. While the market capitalization variable, MCAP, seems to impact ROE positively, the coefficient of the interaction variable MCAGD is negative and statistically significant. Meanwhile, the interaction between market capitalization, the banking system and GDP, MCPBKG, has a strong negative effect on ROE. The high R^2 indicates that ROE is better predicted than in the previous two regressions. Finally, column 4 of Table 6 provides the regression results after adding both the taxation and the macroeconomic variables to the ROE regression. In this regression, LOAN and FRGN are the only two banking characteristics that are still statistically and economically meaningful.

Table 4
Determinants of Islamic Banks' Performance and Profitability.
Dependant Variable: ROE

Variable	1	2	3	4
EQTA	2.253	8.167	583.702	1.072
	0.211	0.914	(4.726*)	0.41
EQAGDP	1.42E-04	2.06E-04	0.011	-6.56E-04
	-0.163	0.233	0.676	0.379
LOAN	7.55E-03	-0.024	0.082	0.15
	-0.073	-0.236	0.712	0.586
LOANGDP	0.801	3.97E-03	-8.02E-03	-5.16E-03
	(1.866**)	(2.287*)	(1.627***)	0.342
CSTF	-0.38	-0.667	-0.133	-0.715
	(1.734**)	(3.391*)	0.99	0.842
CSTFGDP	-0.015		0.016	0.044
	(3.099*)		(2.456*)	(2.177**)
NIEATA	-0.901	-0.862	-1.257	-0.386
	(5.961*)	(5.551*)	(1.699**)	0.746
NIEAGDP	-0.021		-0.079	0.122
	(2.719*)		(3.314*)	(1.668**)
OVRHD	3.067	3.226	10.131	-1.193
	(3.739*)	(3.921*)	(2.724*)	0.787
OVRGDP	0.125	0.025	-0.348	-0.155
	(5.053*)	1.124	(3.965*)	(1.580***)
FRGN	-13.983	1.857	11.076	25.239
	(2.290*)	0.188	0.833	(3.154*)
FRNGDP	0.015	0.011	3.51E-04	4.07E-03
	(7.395*)	(4.543*)	0.092	0.81
LATA	9.815	12.782	583.925	9.666
	0.921	(1.436***)	(4.742*)	0.359
GDPPC		-0.208		-0.03
		(1.376***)		(1.663**)
GDPGR		0.182		0.077
		(3.954*)		0.746

Variable	1	2	3	4
INF		0.272 (5.009*)		0.326 1.895
RES	-1.228 (4.431*)			0.933 (1.598***)
RESGDP	-0.021 (1.561***)			-0.027 1.017
TAX	-0.073 -0.551			-0.52 (2.140**)
TXAGDP	-5.24E-04 -0.323			3.15E-03 0.987
ASST			9.84E-04 0.325	
MCAP			0.153 (1.746**)	
MCAPGD			-4.60E-03 (2.721*)	
BNK			-0.299 1.029	
BNKGD			-2.84E-03 0.74	
MCPBNK			0.012 0.207	
MCPBKG			-4.60E-03 (2.721*)	
C	-825.187 -0.773	-119.69 -1.335	-583 4.739	-948.163 0.35
N	29	66	29	42
R	0.88	0.7	0.97	0.7

* Significant at the 1 percent level-
 ** Significant at the 5 per cent level
 *** Significant at the 10 per cent level
 t-Statistics in parentheses.-

Table 5
Determinants of Islamic Banks' Performance and Profitability
Dependant variable: ROA

Variable	1	2	3	4
EQTA	0.622	1.807	-893.475	154.706
	0.624	0.136	(3.226*)	1.103
EQAGDP	-1.04E-04	-5.35E-05	-9.68E-03	-1.80E-02
	7.70E-02	0.409	0.396	1.233
LOAN	-1.20E-02	0.367	-0.373	0.302
	0.075	(2.742*)	(1.734***)	(2.918*)
LONGDP	-1.44E-03	-3.36E-03	3.50E-02	
	0	(2.081**)	(2.812**)	
CSTF	0.964	0.711	1.066	0.074
	(2.693**)	(2.948*)	(3.006*)	0.648
CSTGDP	-1.64E-03		-0.075	
	0.261		(2.895*)	
NIEATA	0.47	0.565	0.31	0.313
	(1.874***)	(2.737*)	0.373	0.727
NIEAGDP	1.15E-03		-0.085	
	0.092		(2.568**)	
OVRHD	-0.321	-0.986	0.31	0.675
	0.246	1.052	0.053	0.161
OVRGDP	0.043	0.021	0.224	0.024
	1.148	(1.681***)	1.552	0.587
FRGN	25.983	-31.41	126.798	18.202
	(3.557*)	(4.667*)	(7.126*)	(1.800***)
FRNGDP	-2.76E-03	-1.70E-03	-2.80E-02	
	0.897	0.618	(4.464*)	
LATA		1.455	-894.999	53.343
		0.109	(3.238*)	-1.097
GDPPC		2.29E-03		4.09E-03
		(1.681***)		0.93
GDPGR		-0.046		
		0.637		

Variable	1	2	3	4
INF		0.189 (2.417*)		0.644 (6.282*)
RES	0.074 0.204			-0.192 0.811
RESGDP	-0.03 (1.466***)			-2.35E-03 0.321
TAX	-0.89 (4.872*)			
TXAGDP	5.07E-03 (2.11**)			
ASST				4.32E-03 (2.098**)
MCAP			0.774 1.282	-0.071 0.512
MCAPGD			-7.00E-02 (1.752***)	-4.12E-03 (2.067**)
BNK			-0.139 0.259	0.193 0.569
BNKGD			5.20E-02 (2.331**)	-2.22E-03 0.622
MCPBNK			-0.429 1.189	0.186 (2.937*)
MCPBKG			4.00E-02 (1.823***)	
C	39.689 1.127	-235.115 0.176	89.2 3.234	-1539.5 -1.101
N	46	66	29	29
Adj RSQ	0.67	0.49	0.94	0.44

* Significant at the 1 percent level
 ** Significant at the 5 per cent level
 *** Significant at the 10 per cent level
 t-Statistics in parentheses.

6. CONCLUSIONS

The preceding empirical analysis allows us to shed some light on the relationship between bank characteristics and performance measures in Islamic banks. Using cross-country panel data, our study shows that the Islamic banks' profitability measures respond positively to the increases in capital and loan ratios. The results revealed that larger equity to total asset ratio and larger loan to asset ratio interacted with GDP lead to higher profit margins. These findings are intuitive and consistent with previous studies. They indicate that adequate capital ratios and loan portfolios play an empirical role in explaining the performance of Islamic banks. Bank regulators may use this as an evidence for prompt supervisory action. Second, the results also indicate the importance of consumer and short-term funding, non-interest earning assets, and overheads in promoting banks' profits. A high CSTF to total asset ratio is shown to lead to high non-interest margins. The counter intuitive finding about the association between performance and overheads suggests that high profits earned by banks may be appropriated in terms of higher wages and salaries or investment in costly technology used by these banks. Perhaps, the expense preference behavior appears to be holding in the Islamic banking market. Third, foreign ownership seems to have contributed significantly to Islamic banks' profitability. In particular, foreign capital had motivated the operation of Islamic banks in many low-income countries. The positive correlation between the ownership dummy and the performance measures indicates that foreign-owned banks may have technological advantages. Moreover, foreign banks are increasingly looked upon to provide the capital, technology, and know-how needed in banking. Fourth, the results suggest that the tax factors are much more important in the determination of bank performance. The inverse and statistically significant effects of taxes indicate that financial repression is distorting the performance of Islamic banks. The negative effect of the reserve ratio, for example, reveals the opportunity cost of holding reserves. In fact, since deposits in Islamic banks are treated as shares, and accordingly their nominal values are not guaranteed, holding reserves hurt Islamic banks and their depositors in two ways. One, holding reserve requirement reduces the amount of funds available for investment and, hence, the expected returns. Two, reserves do not yield any return to the banks and, therefore, depositors are uncompensated for that part of their deposits. From a policy perspective, one can argue that Islamic banks should be exempted from the reserve requirements¹⁶. Fifth, favorable macroeconomic environment seems to stimulate higher profits. Higher GDP per capita and higher inflation rates seem to have a strong positive impact on the performance measures. Our results also imply that, stock markets and banks play different yet complementary roles. Finally, it should be acknowledged that the scope of this

¹⁶ Islamic banks should be exempted from fraction reserves because they do not utilize the discount window and the last resort function of their central banks, and they do not participate in multiple deposit creation.

paper is limited as several Islamic banks were not included in our study and several interesting questions are not answered. As has been the case of many recent studies, the results are not very robust and may be sensitive to the type of measures of performance used. Because of the small size of our sample and because of many missing observations, our results should be interpreted cautiously.

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Appendix**Names of Banks used in the Study
Year Established and Country of Origin**

Bank	Year of Establishment	Country
Dubai Islamic Bank plc	1976	UAE
Faisal Islamic Bank of Egypt	1977	Egypt
Kuwait finance House	1977	Kuwait
Jordan Islamic Bank for Finance and Investment	1978	Jordan
Bahrain Islamic Bank BSC	1979	Bahrain
Islamic International Bank for Investment & Development	1980	Egypt
Tadamon Islamic Bank	1981	Sudan
Massraf Faysal al-Islami EC	1982	Bahrain
Islamic Co-operative Development Bank	1982	Sudan
Qatar Islamic Bank SAQ	1983	Qatar
Al Baraka Islamic Bank BSC	1984	Bahrain
Al Shamal Islamic Bank	1985	Sudan
Kuwait-Turkish Finance House	1988	Turkey
Qatar International Islamic Bank	1990	Qatar