

AN EMPIRICAL ANALYSIS OF COMMERCIAL BANKS PERFORMANCE IN BAHRAIN

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1. Introduction

Corporate performance has been the primary concern of management, investors and economic planners. This concern stems from the idea that the impact of performance of profit maximizing corporations on their profitability and hence, their survival will have great impact on the country's economic performance. Therefore, a study of determinants of corporate performance would help management, investors, and government to plan in advance for the unpleasant events. Management would have to hedge against the adverse factors and capitalize on those that would improve the firm's performance. Investors would be able to measure the performance of their portfolios and reconstruct their portfolios accordingly. Government would be able to measure the impact of the corporate performance on the economy and its implications on the economic policy.

Commercial banks performance in Bahrain is of particular interest because of the role they play in the economy in terms of their contribution in the Gross Domestic Products (GDP), the employment opportunities they offer, their role as one of the important investment outlet for small investors and their role as one of the main sources of finance to various economic sectors. Additionally, the banking sector represents one of the dominant sectors of those listed at Bahrain Stock Exchange (BSE) in terms of traded volumes, value and paid-in-capital. Therefore, one would expect the banking sector to represent a considerable proportion of the portfolios of Bahraini investors. However, despite their importance, there is no published research that shed would light on the factors that are likely influence the performance of the commercial banks operating in Bahrain. Therefore, this study represents a first attempt to bridge the lack of research in this area.

The prime objective of this study is to investigate empirically the determinants, financially and operationally, of the performance of the commercial banks in Bahrain. The variations in the banks' performance would be analyzed to identify those factors that explain the performance differences.

The remainder of the paper is organized into four sections: the first would provide brief review of issues relating to commercial banks performance, the second describes the model, variables, sample, and the data sources, the third reports the results, and the fourth provides a general summary and conclusions.

2. Prior Research

The influential role of the commercial banks in the economy has brought in its wake extensive literature on their performance. However, the majority of these studies related to the performance of commercial banks in developed countries, mainly in the UK and USA. The purpose of this section is not to review those studies, but to provide a selective survey of some of the salient features of the literature which is relevant in formulating the hypotheses to be tested in this inquiry.

Beaver (1968) tested the usefulness of financial ratios in predicting the bankruptcy of American firms over the period between, 1954 to 1964. He reported that failed firms possessed different characteristics compared with those which did not fail. These characteristics were lower sales, slow growth in sales, poor in both cash flows and profits, and excessive reliance on debt. Altman (1968) used multiple discriminate analysis to test the effectiveness of financial ratios in predicting the failed firm in advance. These were: first, working capital to total assets, second, retained earnings to total assets, third, earning before interest and tax to total assets, fourth, market value of equity to book value of total debt, and fifth, sales to total assets. The Altman's (1968) study provided the theoretical framework for a large number of later studies. Sinkey (1975), used similar approach to that adopted by Altman, investigated empirically to identify the features of problem banks. He postulated that there are several factors, both financial and operational, that might be used to identify possible problem in a bank's performance. These factors are: assets composition, loan characteristics, capital adequacy, sources and uses of revenues, efficiency and profitability.

A number of studies attempted to identify the characteristics of high-performance banks. Ford and Olson (1978) asserted that the elements beyond the control of management contribute modestly in the banks rate of return. They reported that the high performance achieved by the banks in the sample characterized by higher operating profits, higher operating revenues as a ratio of total assets, and lower operating expenses to total assets. The financial determinants of high performance banks are: interest on deposits as a ratio of total deposits, gross loans, to total deposits, cash treasuries to demand deposits, gross charge-offs to loans, municipal bonds income to municipal bonds, securities income to securities, payroll expense to employees, overhead to earnings assets, operating expenses to earnings assets, loan loss provision to earnings assets, loan income to gross

loans, interest on deposits to time and saving deposits. Similar variables were included in the model of banks performance used by Baker (1978), Mayne (1976), and Sinkey (1975).

Arshadi and Lawrence (1987) investigated empirically the performance behavior of the newly established banks in USA. They used canonical correlation analysis (CCA) to test the relationship between the performance measures and a set of endogenous financial and operational variables. Four performance measures were used: the net income to total assets, interest and fees on loans to total loans, interest on time and savings deposits to total time and savings deposits and market shares measured as total loans of sample banks/total loans in market area. Their analysis showed that the bank's cost structure measured as the ratio between salaries and wage expenses to total assets, size and the composition of the bank credit are among the most important determinants of the new bank success.

Al-Shirawi (1988) used a Multivariate analysis of financial statements to study the determinants of the performance of commercial banks in Qatar. His sample includes fourteen banks divided into two groups: first group contains four banks characterized by Qatari majority ownership, and second comprises the remaining ten branches of foreign banks. Originally, he identified fifty-five independent variables that might influence the bank's performance. He used factor analysis to reduce the number of variables to ten. Then, he employed a discriminant analysis to test the hypothesis that each group exhibit different performance. He reported that both groups exhibited different level of performance. The difference in the performance is attributed to capital management measured by equity to total deposits, profitability measured by net income to earnings assets, expense control measured by personal expense to total assets, banks costs services measured by interest paid to total deposits, loan composition measured by consumer loans to total assets, growth management measured by growth in total assets, revenues generation measured by margins to off balance sheet transactions, investment policy measured by interest received on interbank placement to operating income, and efficiency measured by total assets to employees. This study is more relevant to the current attempt because of similar economic environment of both Bahrain and Qatar as they are considered as small oil-based open economy.

An interesting study by Bourke (1989) an attempts was made to appreciate the factors that are likely influence the performance of the commercial banks in Europe, North America

and Australia. The sample includes 90 banks for ten years from 1972 to 1981. To alleviate for differences in the accounting standards and reporting in those countries he introduces the concept of value added. He uses two measures as proxies of this concept: 1) pre-tax income + staff expenses and 2) pre-tax income + staff expenses + loan losses. His results show that liquidity ratio (cash and bank deposit + investment securities as % of total assets), concentration ratio (largest three banks of either total deposits or assets) and growth in money supply in each country are significant in determining commercial banks profitability.

In a more recent study, Molyneux and Thornton (1992) replicate the methodology used by Bourke (1989) to determine the banks' profitability. However, the sample is limited to European banks during the period between 1986 to 1989 from eighteen countries. To alleviate for differences in accounting policies in these countries, they used standardized accounting data published by International Bank Credit Analysis Ltd. (IBCI). In their study, six measures of profitability are used. These are earnings before interest and tax (EBIT) / capital and reserve (C & R), net profit (NP) / C & A, EBIT / C & A + total borrowings, EBIT / Total assets, (EBIT + Staff Costs) / total assets, and (NP + Staff Costs + provision for loan losses) total assets. The results show strong statistically significant positive relationship between concentration and each of the six performance measures.

3. Research Design

3.1. *Measurements of Commercial Bank's Performance*

Generally, two measures of corporate performance are used in empirical studies. These are profitability, and stock prices. Accounting profitability measures provide indications about how the bank's assets are effectively utilized to generate profits [Makhamreh (1986)]. Scott (1983), Burns (1985), Khan (1990) and Bourke (1989) among others used profits to total assets as a measure of profitability. However, other measures such as return on equity used by Short (1979) and Bourke (1989) or profits margin are generally utilized. Stock prices, on the other hand, are used to measure the return on shareholders earnings during the holding period. This measure influences the bank's ability to raise funds from the capital market [Weiner and Mohoney (1980: 80)].

In this study two measures of profitability would be utilized. These are the return on assets

(ROA) and return on equity (ROE) measured as the ratio of net profit to shareholders' equity. The Banker magazine is using these measures in addition to real growth in assets as indicators of the bank's performance. Other measures such as stock prices not being available for one of the banks, that is, Bahrain Grindlays Bank, in the sample, has not being used.

3.2. *Independent Variables*

The various studies cited in the literature suggest that the high-performance banks would be conditioned by the following criteria:

1. Higher price for loans. Revenue maximization would be achieved through pricing for their lending rather than through high volume of loans. They have sufficient flexibility in adjusting their portfolio to take advantages of changes in the market conditions [Al-Shairawi (1988: 78)].
2. Better control on expenses. This can be achieved by minimizing the overhead and other operating expenses, minimization of loan losses through maintaining proper procedures of measuring the creditworthiness of prospective borrowers, an excellent monitoring control procedure for existing loans, and minimizing the personnel expenses through efficient use of their employees rather than employing large number of inefficient employees and paying them low salaries [A-Shairawi (1988: 78)].
3. Good management. High comparative advantages would be enjoyed in managing less controllable factors. Therefore, skillful managers with the ability of setting clear and achievable financial goals, establishing long-term strategic plans, developing short-term profit plans, and flexible in reformulating these plans, would have great influence on the performance of the bank [Ford and Olson (1978: 37)].

The independent variables would be selected according to the following criteria:

1. They should be related to the theoretical propositions presented above.
 2. They should be in a form that could be tested with published data.
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The second condition represents the most severe restriction, requiring many alternative hypotheses to be left unexplored. Accordingly, the following independent variables would be included in the model:

1. Management of the bank's capital (CAPTRA) measured by book value of shareholders' equity to total assets.
2. Expense control (OPCOSTSRA) measured by operating expenses as a ratio of total deposits.
3. Compositions of the bank's deposits (CUSDPRA) measured by bank's private deposits to bank's total deposits.
4. Bank's liquidity (LIQRA), measured by reserves with Bahrain Monetary Agency (BMA), cash at the bank and balances with other banks to total assets.
5. Similar to Hasan (1992) size of the bank (SIZE) measured by the natural logarithm of the bank's total assets.
6. Since 1990 is included in the sample, a dummy variable is included in the model to account that this year performance is significantly difference from the previous years because of the Gulf crisis. Therefore, a dummy variable representing years 1990 and 1991, one when bank received the government help; zero other wise.
7. Two banks (Bank of Bahrain and Kuwait and National Bank of Bahrain) concentration ratio (CONC). This variable measured by the total deposits of both banks as a ratio of total deposits of all banks operating i Bahrain.
8. Government ownership (GOVT). A dummy variable (1) to represent the government ownership in the bank is included, zero otherwise. Marriott and Molyneux (1991) reported strong statistically significant relationship between profitability measured in terms of return on capital and government ownership in a sample of 92 largest European banks between 1986 and 1988.
9. Bank's loans portfolio (LOANRA) measured by the ratio between total loans and total assets.
10. Total advances to total deposit (LONDPRRA) is used as a proxy of the bank's risk.

3.3. Data Source and the Sample

Of the nineteen commercial banks operating in Bahrain in 1991 there are only six banks with Bahraini majority ownership. Five of the Bahraini banks are public companies, and, therefore, they are required by law to publish their annual reports. The sixth bank which

is Bahrain Grindlays Bank (BGB) though is not a public company its annual reports were obtained and, hence, it has been included in the study. The remaining thirteen banks are either branches of foreign banks or subsidiary of non-Bahraini banks for which their data is not available, and therefore they have been excluded from the study. Therefore, this inquiry is limited to the six Bahraini commercial banks. The market shares of these banks in terms of advances and deposits dominate the total market of banking industry.

The annual reports of the banks included in the sample were collected through direct contact with respective banks. The period covered is between 1984 and 1991. The reason for the choice of this period is that one of the six banks included in the study (Bahrain Saudi Bank), has been established in 1983 and, therefore, its annual reports available since 1984. Due to the number of banks (six banks) included in the study and the number of the independent variables (ten), and Similar to Bourke (1989) and Molyneux and Thornton (1992), the data was pooled in order to increase the number of observations to 48. Therefore, relatively sufficient degrees of freedom in regression analysis could be obtained. Furthermore, Chang and Lee (1977) postulate that pooling of cross-section and time-series data can account for simultaneous consideration of intertemporal movements and cross-sectional differences.

4. Analysis of the Results

Table 1 presents descriptive statistics for the dependent independent variables for the models: ROA and ROE.

Table 1

DESCRIPTIVE STATISTICS OF DEPENDENT AND INDEPENDENT VARIABLES

Variable	Mean	SD	Minimum	Maximum
ROA	0.014133	0.022799	-0.0357880	0.102850
ROE	0.088767	0.172470	-0.4933700	0.625800
LIQRA	0.080679	0.099113	0.0090652	0.346920
CUSDRA	0.859800	0.172860	0.0000000	1.000000
LOANRA	0.427090	0.206580	0.0000000	0.886770
LONDPRA	0.521620	0.248120	0.0000000	1.088600
SIZE	5.125300	0.402250	4.3382000	5.818000
WAR	0.250000	0.437590	0.0000000	1.000000
GOVT	0.500000	0.505290	0.0000000	1.000000
CAPTRA	0.164870	0.141860	0.0471720	0.991920
OPCOSTRA	0.020240	0.011398	0.0070562	0.055221

SD: Standard Deviation.

Table 2 presents the Spearman's rank correlation matrix of the dependent and independent variables. This method represents one of the tools for detecting the existence of collinearity between any two independent variables, Lee (1993: 673). The results in the table indicate that there is no severe multicollinearity between most of the independent variables. However, the correlation of 0.95345 between LOANRA and LONDRA suggests possible existence of multicollinearity between these two variables. To overcome this problem, each model, ROA and ROE, is tested three times, the first with only LOANRA, the second with LONDRA and the third with both variables. However, the results of the three tests do not yield significantly different results. Accordingly, only the results of the models which include both variables are reported.

Table 2

SPEARMAN'S RANK CORRELATION BETWEEN THE INDEPENDENT AND THE DEPENDENT VARIABLES

Variables	ROA	ROE	LIQRA	CUSDPR	LOANRA	LONDRA	SIZE	WAR	GOVT	CAPTRA	OPCOR	CONSRA
ROA	+1.00000											
ROE	+0.85505	+1.00000										
LIQRA	-0.05137	+0.01204	+1.00000									
CUSDPR	-0.12783	+0.13529	+0.11162	+1.00000								
LOANRA	+0.10061	+0.25130	+0.16279	+0.54281	+1.00000							
LONDRA	+0.13241	+0.25688	+0.09578	+0.55560	+0.95345	+1.00000						
SIZE	-0.22451	-0.17054	-0.46138	+0.10610	-0.15851	-0.05291	+1.00000					
WAR	-0.16647	-0.90106	+0.02785	+0.22067	+0.10016	+0.07359	+0.10491	+1.00000				
GOVT	+0.29816	+0.34462	-0.43627	+0.06730	+0.27479	+0.35196	+0.59629	+0.00000	+1.00000			
CAPTRA	+0.35858	-0.02095	-0.09665	-0.07384	-0.48651	-0.43039	-0.22329	-0.17555	-0.14016	+1.00000		
OPCOR	-0.98546	-0.09014	+0.16785	+0.09842	+0.59983	+0.52108	-0.36737	+0.15972	+0.04783	-0.03599	+1.00000	
CONSRA	-0.06473	-0.08669	-0.12001	+0.07578	-0.03469	-0.08141	+0.09180	+0.35168	+0.00000	-0.13840	+0.14740	+1.00000

A Multivariate approach is an appropriate method of considering the simultaneous effect of the independent variables on the performance measures of commercial banks' profitability. Short (1979) shows that the appropriate function form for testing the bank's profitability is linear. The two linear functions this study intends to test are:

$$ROA = \alpha + \sum_{j=1}^N \beta_j \chi_j + \varepsilon \quad 1$$

$$ROE = \alpha + \sum_{j=1}^N \beta_j \chi_j + \varepsilon \quad 2$$

Where ROA and ROE are measures of bank's performance, α the constant, β_i the coefficients of the independent variables, χ_i are the independent variables as described above, and ε is the stochastic error disturbance term with a mean of zero.

The econometric analysis in this paper are carried out using "SHAZAM" Version 7. This is an econometric computer program developed by White (1993). This program was used to perform the traditional generalized least square (GLS) regression method. The analysis of the pooled data is based on the cross-sectionally heteroskedasticity and time-wise autoregressive model discussed by Kmenta (1986: 618-622) to estimate a linear equation. The model has the following assumptions:

- 1 The error terms of the regression of the cross-section are independent though they are heteroskedastic, that is
 $E(\varepsilon_{it}, \varepsilon_{jt}) = 0$ for $i \neq j$, cross-section independence
 $E(\varepsilon_{it}^2) = \sigma_i^2$.
- 2 The disturbance terms of time-series data are autoregressive though not necessary heteroskedastic, that is $\varepsilon_{it} = \rho_i \varepsilon_{it-1} + v_{it}$, where $E(v_{it}) = 0$, $E(v_{it}^2) = \phi_{it}$, $E(v_{it}, v_{is}) = 0$ for $i \neq j$, $E(v_{it}, v_{is}) = 0$ for $t \neq s$, and $E(\varepsilon_{it}, v_{is}) = 0$.

Diagnostic tests indicate that there is little evidence to suggest that the distribution of the dependent and independent variables depart from normality. A number of different models have been tested which vary in the number of variables tested, however, only the best models are reported. This is done on the basis of Buse Raw-Moment R^2 , the significance of the estimated parameters and the magnitude of Durbin-Watson statistics. Excluding the liquidity variable has substantially improved the results of the regression of both ROA and ROE models. Furthermore, heteroskedasticity test suggested by White (1980) is used to diagnose the data. The results show the absence of heteroskedasticity in the data used in the study.

Tables 3 and 4 present the results of the regression analysis of pooled data of both ROA and ROE models. The Buse Raw-Moment R^2 is 79.04 percent and 87.74 percent of the ROA and ROE models, respectively. The Durbin-Watson statistics for ROA model is 2.014 and 1.5021 for ROE model indicate a possible autocorrelation problem in the later model.

Table 3

REGRESSION RESULTS OF THE ROA MODEL

Variable	Estimated Coefficient	T-Ratio	Beta Coefficient	Elasticity at Means
WAR	-0.002092	-0.6466	-0.0401	-0.0370
GOVT	+0.030378	+5.5280 ¹	+0.6733	+1.0747
CONSRA	+0.131640	+3.9560 ¹	+0.2071	+4.6687
LOANRA	-0.046210	+1.4280 ²	+0.4187	+1.3964
LONDRA	-0.559840	-0.2187	-0.0609	-0.2066
CUSDRA	+0.030695	+2.1030 ²	+0.2327	+1.8673
OPCOSTRA	-1.235900	-5.1670 ¹	-0.6178	-1.7699
CAPTRA	+0.010057	+5.1240 ¹	+0.6258	+1.1732
SIZE	-0.039429	-5.7640 ¹	-0.7137	-14.3096
CONSTANT	+0.099817	+2.5870 ²	+0.0000	+7.0627

¹ Significant at less than 0.0001.² Significant at 0.025.³ Significant at 0.091.**Table 4**

REGRESSION RESULTS OF THE ROE MODEL

Variable	Estimated Coefficient	T-Ratio	Beta Coefficient	Elasticity at Means
WAR	-0.029014	-1.0310	-0.0736	-0.0817
GOVT	+0.321320	+7.3310 ¹	+0.9414	+1.8099
CONSRA	+1.100500	+3.5000 ¹	+0.2289	+6.2141
LOANRA	+0.235330	+0.8951	+0.2819	+1.1323
LONDRA	-0.108760	-0.5492	-0.1565	-0.6391
CUSDRA	+0.214060	+1.9570 ²	+0.2145	+2.0734
OPCOSTRA	-8.722700	-6.9230 ¹	-0.5764	-1.9889
CAPTRA	+0.150670	+1.0870 ¹	+0.1239	+0.2798
SIZE	-0.389780	-7.1340 ¹	-0.9327	-22.5226
CONSTANT	+1.301800	+4.0160 ¹	+0.0000	+14.6559

¹ Significant at less than 0.0001.² Significant at 0.029.

The coefficient of WAR is negative, as a priori hypothesized. However, it is insignificant at the conventional level in the ROA and ROE models. This implies that on average the ROA and ROE of the Bahraini banks decline in the two years following the Gulf Crisis, although the significant level shed some doubt on the magnitude effect of this variable on the banks' profitability. The slow down in the economic activities after the Iraqi invasion of Kuwait in August 1990 is among the important factors for the decline in the profitability of

the Bahraini commercial banks.

In contrast to what Short (1979) found and in agreement with what Molyneux and Thornton (1992) reported, the coefficient of GOVT is positive and highly significant in ROA and ROE. This indicates that the government ownership of part of bank's shares is positively correlated with the bank's performance. In Bahrain, people view that the government holding of the company's stock would insure government's support to the company when it is needed. Therefore, customers and shareholders place confidence in their relationship with those banks.

The coefficient of CONS, as expected, is positive in both models tested and highly significant. These results are in line with findings in the literature. Bourke (1989) and Molyneux and Thornton (1992) reported similar results. The elasticity at means of the variable is 4.6687 and 6.2141 in the ROA and ROE models, respectively. The size of this statistics indicate the magnitude of the effect of the unit changes in the concentration on the dependent variables.

As it is expected, the coefficient of operating expenses is negative and significant in both models. These results indicate that the bank's profitability is negatively correlated with cost involved in providing the services to the customers. Kwast and Rose (1982) argue that this ratio represents a reasonable proxy of the commercial bank's operating efficiency. Therefore, due to the competitive and economic pressure banks operating in Bahrain it is imperative that they should to establish their policies with the aim of curbing the costs of the services provided.

The coefficient of loan ratio is positive, and highly significant in the ROA model and insignificant in ROE model at the conventional level. This indicates that the larger the bank's loan portfolio the higher the performance the bank can achieve. A possible explanation to these results is that loan portfolio derives the banks earnings. During the period under study, one can hardly notice price differential between similar products offered by different banks. However, one can observe severe competition among them for attracting customer to their products through adding new features to the products.

In both models, the coefficient of the LOAN to DEPOSIT ratio is negative, however, it is statistically insignificant. These results indicate that there is an insignificant negative

relationship between the proportion of deposit used by the bank to finance the loan and advances. Possible explanation for these results is that the more deposit used to finance the loan portfolio the higher the risk the bank has undertaken, which might lead to the increase in the provision for doubtful accounts.

The coefficient of the variable of private deposits, as priori expected, is positive and highly significant in ROA and ROE models. Generally, personal deposits are the cheapest source of funds available to commercial banks. Therefore, the performance of commercial banks is directly related to the ability of the bank to attract individual deposits. Hence, one way to improve the bank's profitability should be to formulate aggressive policies for attracting personal deposits. These policies become increasingly important because of the severe competition banks are experiencing within the industry and partly with other financial institutions such as insurance companies.

Results in Tables 3 and 4 show that the coefficient of CAPTRA is positive in both models. However, the significant levels is weak (0.142) in ROE model and highly significant in the ROA model. This ratio is used as a proxy of the bank's adequacy. The bank's shareholders' equity represents the last defense against unexpected decline in the bank's profitability. Additionally, this ratio is viewed as a measure of the bank's ability for exploiting growth opportunities. These results of the study indicate that the larger the capital base the bank enjoys the better performance it will be achieved in terms of ROA and ROE. Similar results reported by Gup and Walter (1989) who investigated the characteristics of top performing small banks in United States.

The coefficient of the bank's size measured in terms of the log of total assets is negative and highly significant. Economies of scale is assumed to have positive relationship with the firm's size. Naturally, the economy of scale can be achieved when the company become large. However, the results indicate the smaller banks achieve better results as compared with the larger banks. These results are similar to the findings of Benston, Hanweck and Humphney (1982). The elasticity at means of -14.3069 and -22.5226 of ROA and ROE equations, respectively. Therefore, this variable seems to play the most important role, as compared with the other variables included in the models. It is worth noting that, when the log of total assets is replaced by the procedure recommended by Haslam and Laybrake (1971) and Arshadi and Lawrance (1987), the results obtained are not significantly different from what have been reported above.

5. Conclusion

Commercial banks in Bahrain are playing an important role in the economic development of the country. These banks represent one of the important tools for implementing the government monetary policies. This role becomes increasingly important as these banks are expected to participate actively in financing the new industrial development plan the Government of Bahrain is implementing. Despite their role, there is no study on the performance of these banks. This endeavor represents a step in this direction. The primary purpose of this research is to investigate empirically the determinants of the Bahraini commercial banks over the period between 1984 and 1991. Two models were used, one that defines the bank's performance in terms of return on assets (ROA) and a second that defines this measure as a ratio between net profits and shareholders equity (ROE). The independent variables which were included in both models are considered as internal factors. Due to the small number of banks included in the sample and in order to increase the degrees of freedom the time-series and cross-section data was pooled. The analysis of the pooled data is based on the cross-sectionally heteroskedasticity and time-wise autoregressive model discussed by Kmenta (1986:618-622) to estimate a linear equations. In general, both models have performed reasonably well in explaining the impact of the independent variables on ROA and ROE. The results indicate that Gulf Crisis, loan to deposit ratio, operating costs and the bank's size are inversely related to the two measures of performance. Further, concentration loan to total assets ratio, individual deposits to total deposits ratio, shareholders' equity to total assets ratio, and government ownership in the bank's stock are directly related to the banks profitability. However, in both models the coefficients of the dummy variable representing the Gulf Crisis and LOAN to DEPOSIT ratio are insignificant. In addition, the LOAN to ASSETS ratio is only significant in ROA the model.

The results of the study in general confirm the reported findings of a number of attempts cited in the body of the paper. A noticeable difference is the effect of size on the performance of the banks. In contrast to the expectations, small banks performed significantly better than large banks.

The effect of other variables suggested in literature such as the composition of loan portfolios and employees' efficiency, but not included because of the unavailability of the required data might be possible in future. This will be facilitated by the recent decision by

the Bahrain Monetary Agency which required banks to comply with International Accounting Standard No. 30 and thereby forces banks to disclose more information than what they are currently providing.

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Abstract

This paper focuses on the determinants of performance of the Bahraini commercial banks over the period between 1984 and 1991. The analysis of the pooled data is based on the cross-sectionally heteroskedasticity and time-wise autoregressive model discussed by Kmenta (1986: 618-622) to estimate a linear equation. Two accounting measures of banks' performance tested in this study: return on assets (ROA) and return on equity (ROE). Both models have performed reasonably well in explaining the dependent variables. The results indicate that Gulf Crisis, loan to deposit ratio, operating costs and the bank's size are inversely related to the two measures of performance. Further, concentration loan to total assets ratio, individual deposits to total deposits ratio, shareholders' equity to total assets ratio, and government ownership in the bank's stock are directly related to the banks profitability.

Résumé**ANALYSE EMPIRIQUE DE LA PERFORMANCE DES BANQUES COMMERCIALES À BAHREIN**

Cet article se concentre sur les points déterminants de la performance des banques commerciales Bahreiniennes durant la période de 1984 à 1991. L'analyse des chiffres collectifs est basée sur l'hétéroscédasticité trans-sectionnelle et le modèle autoregressif "time wise" présenté par Kmenta (1986: 618-622) pour estimer l'équation de forme linéaire. Deux mesures d'ordre comptable des performances des banques sont testées dans cette étude: le rendement sur l'actif et le rendement sur le capital. Les deux modèles ont donné des résultats raisonnables en expliquant les variables dépendentes. Les résultats indiquent que la crise du Golfe, le ratio prêts sur dépôts, les dépenses d'exploitation et la taille de la banque sont inversement liés aux deux mesures de la performance. De plus, la concentration de ratio prêt au total d'actif, du ratio dépôts individuel sur dépôts totaux, le ratio actions sur actif total, et la part d'actions du Gouvernement dans le capital de la banque sont directement liés à la profitabilité de la banque.