

***Determinants of Commercial Banks profitability
in Bahrain: An Empirical Research***



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I certify that all materials in this project which is not my own
work has been identified and that no material is
included for which a degree has previously been
conferred upon me

A handwritten signature in dark ink, appearing to be 'Adeeb', written over a horizontal line.

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ABSTRACT

The main purpose of the present study is to implement an academic research to highlight the main factors that effect on the commercial banks profitability in Bahrain. The sample consist of 18 commercial banks, six of them are local commercial banks and the other are branches of foreign banks. The period covered in this study was from 1984 to 1991. The data are gathered from Bahrain Monetary Agency which consist of the profit and loss account and the balance sheet of the commercial banks from 1984 to 1991. The methodology applied in this study is a multiple linear regression of time series cross-section of the pooled data under-study. The econometrics computer package (SHAZAM) was used to calculate the correlation and the multiple regression. The profitability measurement which were used are the return on assets (ROA) and return on capital (ROC). These measurement were used as dependent variables in the regression models.

The result show in both models return on assets ROA and return on capital ROC that, there is a positive relationship between the profitability ratio with capital ratio and the government ownership.

On the other hand, the result show there is an inverse relationship between the profitability ratios and operating cost, liquidity ratio, interbank deposit, size and interest rate.

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CHAPTER ONE

Introduction

1.1 Introduction :

Bahrain has become among the well known international financial centers. Its geographical location and the competent infrastructure facilities, that is supported by an excellent communication network, gave the island a unique reputation which attracted foreign investors, after they had lost Lebanon as a financial center for the whole middle-east region. The political and economical stability with the government policy that focused on encouraging investors, had made it most favorable place to serve the region. Hence, considerable number of well known international financial institutions were established in Bahrain in the seventies which took place during the oil boom period and immediately following Bahrain independence in 1971.

The number of financial institutions (Local, Regional and International) operating in Bahrain increased rapidly from very few firms, that were in operation during the sixties 1969 to become about 206 approximately in 1991. This includes commercial banks, offshore banks, insurance companies, money and foreign exchange brokers and money changes. There were eight commercial banks in Bahrain by 1969, however, this number increased rapidly to nineteen banks by 1991. Most of them were established in the seventies as a consequences of increase in the oil revenue (Bahrain Monetary Agency- BMA, annual publication 1991).

However, the drop of oil prices in the international market during late eighties had affected negatively the economy of the Gulf region. The data of the commercial banks showed a clear reduction in return on assets. The return on assets was 2.38% in 1984, and 0.04% in 1988. (BMA, annual publication 1991- table 4.2)

On the other hand, the policy makers in Bahrain attempted to improve and develop the role of the financial sector to increase its contribution in Gross Domestic Products. This sector's contribution reached 5.1% of GDP in 1991. (National Account Report - Ministry of Finance and National Economy 1991) .

1.2 Purpose of the Study :

This study is to investigate and highlight the main factors affecting the profitability of the commercial banks in Bahrain through a directed academic empirical approach .

1.3 Choosing the study :

The basic reasons for selecting this empirical research are :

1. Personal interest for implementing financial and statistical analysis on the historical data.
2. The important role of the commercial banks in the national economy as they are intermediate between the deficit, and surplus economic units (household, private sectors and Government) Cargill (1986).
3. The considerable contribution of commercial banks in the Gross Domestic Product..

1.4 Prior studies in Bahrain :

This study is one of the academic researches applied in Bahrain covering 18 commercial banks, local and branches of foreign commercial banks. The previous studies had always emphasized on the local commercial banks only, but excluded the branches of foreign banks operating on the island.

The first study, by Abbas (1991) which was conducted on a sample containing only the largest commercial banks in Bahrain. Abbas' study was reported as a single chapter of his MBA project. The second study, by Abdulla (1993) conducted on a sample containing the six local commercial banks. However, the present study covered 18 commercial banks, both; local and branches for foreign commercial banks.

The methodology adopted by Abbas was based on the analysis of time series data of 11 years (1979-1989). He used the financial ratios of the total averages for the commercial banks in the sample .

Abdulla used a time series cross section analysis for 8 years (1984-1991) as the methodology for analysis in his study. The financial ratios of each commercial bank were calculated and used in the study.

In the present study, the time series cross section was used as the methodology in the study. The independent variables were completely different from the studies of Abbas and Abdulla. Furthermore, in this study, the selection of the independent variables were also dependent on the data availability.

The two prior studies were executed, the data from the annual reports of commercial banks which contained information about the banks activities outside Bahrain market.

In the present study, the data has been obtained from the Bahrain Monetary Agency, which contained information about the banks activities in Bahrain market only. Therefore, different results are expected, due to the sample size and different source of the data which represents the activities of commercial banks in Bahrain market only.

1.5 Significance of the study:

The result of the study would be useful to regulators and financial policy makers such as Ministry of Finance & National Economy, and the Bahrain Monetary Agency, while new policies and strategies are reviewed and developed . Moreover, the study could be useful to the bank managers while evaluating and formulating their strategies when focusing on studying main factors affecting or likely to affect the commercial banks returns.

This study could also be useful to financial analysts, researchers ...etc, who are interested in specific information , analysis or general findings in this subject.

1.6 Limitations :

This study among those considered as complicated studies required to cover wide, important and sensitive areas. It is also among those influenced by large number of variables. Therefore, it was not possible to encompass all relevant variables that would normally affect the profitability of the commercial banks in Bahrain.

Some of these constraints and factors are :

1. Difficulties to obtain all the data required to calculate the financial ratios such as investment in securities, different type of loans, different type of deposit.
2. The balance sheets and, the profit-and-loss accounts are reflecting an information of the activities in Bahrain market only.
3. The data were collected from BMA ,that were not published and could be not audited.

However, the theoretical literature and prior studies support the study with the above limitation, and the finding obtained are still useful and do achieve the purpose of the study.

1.7 Summary of the result :

The result show in both models return on assets (ROA) and return on capital (ROC) that, there is a positive relationship between the profitability ratio with capital ratio and the government ownership. The relation with the capital ratio has strong statistical significant, but it is not statistically significant with the government ownership.

On the other hand, the result shows there is an inverse relationship between the profitability ratios with liquidity ratio, operating cost, interbank deposit to total deposit, size and interest rate. The relation with the operating cost, interbank deposit to total deposit, and size are statistically significant while it is not statistically significant with the liquidity ratio and interest rate.

1.8 Organization of the study:

This study was conducted under four main chapters, and these chapters has included the following :

Chapter one, introduction, highlightes the importance of Bahrain as an international financial center. Other areas covered are purpose of the study, reason for choosing this study, significance and limitations.Chapter two: highlights the main literature

that is closely related to the subject under study. The chapter contains the main sub-headings, measurement of banks' profitability; size and economic of scale, capital adequacy, risk and return, liquidity, interest rate, ownership and performance.

Chapter three: Outlines and discussions the methodology applied in the approach, in compiling and analyzing the data, which included, research hypothesis, data gathering method, data description and the model used in the study.

Chapter four: highlights the analysis and findings. This chapter also includes the summary/conclusion of the study.

CHAPTER TWO

Review of Literature

2.1 Introduction :

Many studies related to the determinants of banks' profitability in developed countries was conducted e.g. Bourke (1988); Molyneux and Thornton (1992); Meister and Elyasiani (1987); Espahbodi (1990); Dahi (1991). Similar studies covering the same area was conducted in Bahrain such as that of Abdulla (1993) and Abbas (1991).

Many researchers highlighted factors, that influenced the profitability and performance of the bank. Factors like, management skills and experience play an important role in the bank profitability. The economic conditions are another factor, that would affect the bank profitability. i.e as certain sectors of the economy depressed and the bank performance is adversely affected. The size of the bank is also a factor, that could effect profitability. Reed and Gill (1989) showed that the bank with assets below \$25 million are considered too small for maximum efficiency. The competition in banking industry is an additional factor influences profitability. (spreading financial resources available)

In addition, securities gain and losses, loan losses, capital, liquidity, government ownership and interest rate are also important factors, that affect the profitability of the bank.

This chapter presents a summary of literature which are closely related to this study.

2.2 Measure of bank profitability :

The most commonly used measures of profitability for the firms are return on assets (ROA) and return on equity (ROE). Gironx and Rose (1981), p35-36, explained the above two ratios as follow:" Return on Assets is an index of management's effectiveness in using all the resources, which society has made available to the bank. One key advantage of this profitability measure is that it is unaffected by the way in, which the bank finances its operations (i.e its structure of equity capital, deposit and non-deposit borrowings). Moreover, since (ROA) is a ratio, it can be used for comparing one bank

against another or for comparisons across industries and over time. The most obvious weakness of the (ROA) measure, is its failure to indicate returns being earned by the bank's stockholders. The owners have placed their money at risk in the bank hoping to earn a competitive rate of return. A key measure of profitability would be the bank's earning relative to the amount of capital contributed by its owners, or the return on equity.

Return on Equity (ROE) is the profitability measure most closely related to a bank's stock price with higher levels of (ROE). This often is leading to a higher stock price. Because, it is a ratio, it can easily be computed across banks and over time. Quite obviously, (ROE) & (ROA) are related to each other.

$$(ROA) \quad \frac{\text{Average Total Assets}}{\text{Average Equity Capital}} = (ROE)$$

The ratio (average total assets to average Equity Capital) is often called the Leverage Equity Capital. Its often called the Leverage ratio since it indicates, what proportion of a bank's assets are financed by debt (deposits and non deposit borrowings) as opposed to Equity Capital (funds contributed by the stockholders and retained earnings). A bank with high rank of (ROA), may find, that it has a mediocre (ROE) due to excessive reliance on equity capital to finance it assets."

Furthermore, Reed and Gill (1989), indicated that bank regulatory authorities and bank analysis used three popular profitability measures, these are, return on assets (ROA), return on equity (ROE) and net interest margin. He further explains, that the net interest margin is: "That margin which measures the spread between a bank's interest income and its interest expense. It is calculated by subtracting a bank's interest expense from its interest revenue net of loan losses, and dividing that result by its net interest earning assets". Reed and Gill (1989) P.200. In addition , Reed and Gill criticized the use of earning per share to measure the profitability of the banking system. They stated, that the earning per share is an excellent indicator of how well a bank has done, compared with previous years or to management's expectations. It is calculated by dividing net earning

by the number of shares held by shareholders. Despite its acceptance by shareholders as a measure of profitability, it is difficult to use this measure to compare banks profitability because dividend ratios may differ. Reed and Gill argument is based on the following :

1. Different pay out ratio by banks.
2. The case of a rapidly growing bank, that must add outside equity capital to maintain an adequate equity base. The new shares will dilute earning per share so that for two or three years after the new issue is sold, earning per share will not be a fair indicator of the bank's performance.

Fredericks (1990), who is a bank analyst and general partner at Montgomery Securities in San Francisco has followed bank stocks for nearly twenty years. Fredericks had been interviewed by Bankers Magazine's Interviewer who asked "How do analysts measure bank profitability?" Fredericks replied that, most analysts start with two typical measures: return on assets (ROA) and return on equity (ROE). For more questions to be answered by Fredericks is beyond this study, but in conclusion he emphasized on the strategies for increasing profitability during the 1990s by cost control and market segmentation.

In addition, Bourke (1988), Molyneux and Thornton (1992), Abbas (1991) and Abdulla (1992) used the return on assets (ROA) and return on equity (ROE) to measure the banks profitability as an dependent variable in their models.

2.3 Management :

The main objective of commercial banks management is to maximize the wealth of the shareholders. This objective is not different from any other profit-seeking organization .The basic functions of management in commercial banks or private and public organizations are planning, organizing, staffing, directing, and controlling. Bank that have expertise in these areas are more likely to experience profitability better than those do not. Reed & Gill (1989).

A study by Gironx and Rose (1981), showed that bank using financial planning and forecasting to reduce uncertainty, increased their profitability than those that did not use those techniques.

According to Espahbodi (1990), Bank weakness and failure could be attributed to the poor management, which manifest in excessive credit or liquidity risk, poor loan quality, excessive expenses relative to revenue, and sluggish internal generation of equity capital.

2.4 Size and economic of scale :

Fischer and Dornbusch (1983), stated that p.164 " There are economies of scale when long-run average costs decrease as output increase". Fischer and Dornbusch also mentioned three reasons for the economies of scale;

- (1) Indivisibility in the production process of the firm. i.e the firm did not have to increase the minimum amount of some inputs (fixed costs: mangers, telephones.) in relation to increase in output.
- (2) Specialization.
- (3) Large scale is often needed to take advantage of better machinery. Engineers have a rule of two-thirds,that applies to many factory or a machines .i.e The cost of building a factory or a machine rises only by two-thirds as much as the output of the factory or machine.

However, Fischer and Dornbusch explained, that the second and third reasons apply mainly to manufacturing firms. Economies of scale are likely to be less significant in service firms. In addition, the main reason of diseconomies of scale is that management become difficult as the firm set larger.

In the banking industry Watt (1992) stated that (p. 23) "...One popular argument for consolidation maintains, that consolidation will increase banks' profitability because it will allow banks to cut costs by maximizing their operating efficiency... . This claim is generally accepted without question by bank analysts, but is it true ?"

Watt compared the large banks (with assets greater than \$ 10 billion) with the small banks (with assets of \$1 billion or less) in United State at 1990 and found that, Return

on assets was 0.4% for large banks and 0.8% for the smaller banks, where return on equity was 7.8% for the largest banks and over 9% for the smaller institutions.

In addition, Watt concludes regarding the competition in the international market, that size is not the primary determinant of successful international banking. Banks can achieve success on the international scene at the same way they do at home, through effective management, sound capital, adherence to sound banking principles and a hunger for profitability.

Referring to the importance of commercial banks to meet the consumer needs, Watt stated in p27 "Commercial banks are the primary source of financing for small to medium-sized business ". The latest study, by Elliehausen and Wolken (1990) showed, that more than 90% of small and mid-sized companies identify local banks (no more than 30 miles away) as their primary financial institution. Factors influencing this preference were transaction costs, personal attentive service, interest rates and convenience. Therefore, local banks give customers more personalized attention simply, because the local customer is important to bank profits. Local banks, with more stable senior management staffs and less bureaucratic than big banks, can make credit decisions more quickly and implement more flexible credit policies.

However, Reed and Gill (1989), pointed that the small banks are less profitable than big banks. Reed and Gill compared the return on assets of different size of banks in USA and noticed, that banks with assets below \$25 million are too small for maximum efficiency. Before interest rate regulation in 1980, small banks could cover their inefficiencies with large interest margins, but deregulation has forced smaller banks to pay higher rates on deposits, and these rates have not been fully offset with loan charge.

Abdulla (1993) used the log of the total assets of banks to measure the size, and investigated its effect on the banks performance. He found that, there are an inverse relationship between the banks performance and the banks size.

2.5 Interest rate :

Cargill (1986), stated that "Interest rate play an important role in the economy. Not only do they represent the return and cost of lending and borrowing, respectively, but they play an important role in the conduct of monetary and fiscal policy. In addition, interest rate fluctuations have differential impacts on the economy, such as in case of housing, and raise both economic and social issues in the conduct of stabilization policy".

Moreover, Cargill distinguished between the real and nominal or market rate of interest to illustrate the role played by price anticipation. The real rate is the equilibrium rate determined by either loanable fund or liquidity preference approaches, where market participants assume, that there will be no price changes in the future. The nominal rate is the actual observed rate in the financial system, and is equal to the real rate plus an adjustment to account for the fact, that market participants have anticipation about future price changes. The relationship of the nominal and real interest rate was expressed by Fisher hypothesis which asserts, that nominal interest rate rise on a one-of-one base with respect to the expected rate of inflation. i.e $\text{Nominal Interest Rate} = \text{Real Interest Rate} + \text{Inflation}$.

Moazzami (1989), found in his study that, the Fisher hypothesis is valid in the long run proposition.

Bourke(1988), Molyneux and Thornton (1992) Abbas (1991) used the nominal interest rate as an independent variable in their model. They found a positive significant relationship between the nominal interest rate and the profitability of the banks.

2.6 Capital :

Capital is needed both to deal with losses while enabling the business to continue, and to support the basic infrastructure of the bank. Llewellyn (1988) p9.

The Bank of England has defined two objectives of capital requirements: (1) to ensure, that the capital position of an institution is regarded as acceptable by its depositors and other creditors. (2) to test the adequacy of capital in relation to risk of losses, which may be sustained.[cited from Llewellyn (1988)].

Llewellyn also pointed that, the ultimate purpose of capital is to protect against various forms of risk, that might affect a bank's ability to service its liabilities in the face of fluctuating earnings and changes in the value of assets.

Regarding to the relationship between the capital and profitability. Llewellyn stated, that p12 "Both profitability of a bank and its capital position are important in determining the institution's strength". Moreover, there is an arithmetic link between the return on equity and the capital ratio, the return on equity rise - other thing equal (profit margin) if the capital ratio decline. On the other hand, the higher level of profitability, the more room for the maneuver the bank has in its allocation decision as between the reserve, distribution and allocations to provisions. Llewellyn (1988).

Shrieves and Dahi (1991), confirmed in their result that, risk exposure and capital levels are simultaneously related, and that the majority of banks mitigate the effects of increases in capital levels by increasing asset risk exposure, and vice versa. The fact that these relationships were present even in banks, which were in excess of the minimum regulatory requirements for capital adequacy supports the conclusion, that the positive association between risk and capital in such banks is not strictly the result of regulatory influence, but rather reflects the view that risk-taking behavior tends to be constrained by bank owners' and/or managers' private incentives. Furthermore, Reed and Gill, (1989) p 175 stated, that the capital funds to total assets ratio came into used by some supervisory authorities in the late 1940s. They argued, that the amount of capital a bank needs is not related to deposits, but to assets. Because a measure of capital adequacy purports to indicate the extent, that a bank's capital can absorb loss and still protect the interest of depositors, a valid measure would have to be related to all items in the balance sheet by reduced values of assets; therefore, a measure of capital adequacy should logically relate capital funds to those assets and not to deposit. Moreover, Bourke(1988), Molyneux and Thornton (1992) Abbas (1991) and Abdulla (1993) used the capital to total assets ratio in their analysis.

2.7 Risk and return :

Risk is always related to the required rate of return in different type of investments, where the high risky investment have high expected rate of return and verse versa. The capital assets pricing model (CAPM) produced by J. Treynor, W. Sharpe and J. Lintner (1960). [cited from R. Brealey and S Myers (1988)] The (CAPM) message is both startling and simple. In a competitive market, the expected risk premium varies in direct proportion to Beta (the slope of the line). Thus the required risk premium for any investment is given by the security market line : $r - r_f = B (r_m - r_f)$ where, r expected rate of return of the investment, r_f rate on treasury bill, r_m rate of return of the market , B measure the risk.

In the banking industry the lending to the different economic sectors of the economy has the higher ratio of risk with higher return compared to the investment in the government securities and deposit into other banks . According to John V. and Mary M. McLaughlin (1990), that the large USA bank's experienced high losses domestically, from lending to the real estate sector as well as developing countries in 1987 and 1988. On the other hand, Gironx G.A and Rose P.S (1981) provide an indicator ratio of the credit quality, by provision for loan losses to total loans ratio. On the other hand Galai (1990), considered three types of risk for financial intermediary in the competitive market :(1) the market-determined risk related to future level of short term interest rate; (2) the financial risk faced by equityholders due to the levered position of the bank; (3) the default risk of the bank due to its potential inability to pay back depositors.

Abdulla (1993) used the total advances to total deposit as a proxy of the bank's risk in his study. He found that there is a statistically insignificant negative relation between loan and advance to the banks performance.

2.8 Ownership and Performance :

Oswald S. L. and Jahera J.S, 1990, studied the relationship between ownership structure and financial performance. The theoretical basis of their research was the agency relationship hypothesized by Jensen and Meckling (1976). Jensen and Meckling

(p 83) define organizations as 'legal fiction (i.e the artificial construct under the law which allows certain organization to be treated as individuals), which serve as a nexus for a set of contracting relationship among individual. These contractors or shareholders are the suppliers of production. The manager or agent serve as coordinators between all interested parties. Agency theory suggests that shareholders are owners of financial capital, not owners of the firm. Therefore, the degree to which managers use their abilities to maximize shareholder' wealth is dependent on the percentage of equity-ownership, that manager has in the firm. Furthermore, the manager who acts as agents for owners, may pursue strategies and goals to meet their own utility rather than that of the owners. Such activities can be limited, but probably not eliminated by the expenditure of resource on monitoring activities by the outside shareholders.

Oswald and Jahera used the superior risk-adjusted performance measure and large sample size. They are also controlling the firm size difference in their methodology. Their result shows that, there is a significant relationship between ownership and performance, even after controlling for size difference.

Concerning the government ownership - partial ownership, Government play an important role in the economy. It has the highest capital and resources. However, the government ownership of bank (have percentage of the equity) will drive the bank policy to achieve the nation objectives. Further, the public trust will increase due to the perspective of the government's support to the banks when faces problems.

Bourke (1988), found that, there was a statistically significant inverse relationship between the government ownership of the commercial banks with the profitability ratio. However, Molyneux and Thornton (1992) Abbas (1991) and Abdulla (1993) found a positive relationship between the government ownership and return on capital . Molyneux and Thornton suggested that p 1175 "state-owned banks generate higher return on capital than their private competitors. Because state-owned banks generally maintain lower capital ratio (because the government implicitly underwrites their operation) than their private sector counterparts".

2.9 Liquidity :

According to Reed and Gill (1989), p 127 " the liquidity is the quality of an asset, that makes it easily convertible into cash with little or no risk of losses. Cargill (1986) stated that, P 94 "liquidity depends on the amount of funds devoted to primary and secondary reserves. The higher the ratio of primary and secondary reserve to total assets, the greater the liquidity of the bank. Primary reserves the most liquid financial assets consist of (1) vault cash, (2) reserve held as a deposit at the Federal Reserve Bank, (3) correspondent demand deposit in other banks and (4) cash items in process of collection. Secondary reserves consist of financial assets, that possess a high degree of liquidity either because they have secondary market, or very short-term maturity while at the same time, providing interest income .

Reed and Gill (1989), distinguish between two concept of liquidity measurement. Stock approach measure the liquidity from appraise holding assets, that may be turned into cash. But the flow approach viewing liquidity by ability to convert liquid assets to cash, ability to borrow and to generate cash from operation. However, the most widely used liquidity measures are gauged from the stock concept. Firstly the ratio of loan to deposit, the use of loan to deposit ratio as a measure of liquidity is based on the premise, that loans are the most non liquid of the bank earning assets. Therefore, as the portion of deposit invested in loan rise, liquidity declines. However, loan to deposit ratio have some limitations (more detail Reed and Gill P129). It is not intended to be perfect measure of liquidity. Secondly, the other liquidity measures is liquid assets to total deposit or total assets. It has superiority in some aspects to the loan/deposit ratio. The liquid assets to deposit relates liquid assets directly to deposit levels, rather than indirectly by considering loans. Reed and Gill (1989).

"The two main banking risk of direct relevance to liquidity management are liquidity risk and interest rate risk. Funding (liquidity) risk is the risk, that a bank may not have sufficient funds to meet commitments at any given point in time, while interest rate risk is

concerned with the uncertainty created for bank profitability, by possible variations in interest rate". Hall (1988)

Bourke(1988), Molyneux and Thornton (1992) Abbas (1991) and Abdulla (1993) used liquidity ratio in their analysis.

2.10 Conclusion :

Many of financial analysts and researchers attempted to find the main factors, which affects the performance and profitability of commercial banking industry. These studies applied to fulfill the gap between the theory and the practice. In addition, these researchers conducted to satisfy a need from the financial market, the authority and the policy maker, and banks managers. The increasing concerns of the profitability of commercial banks is another factor to apply these type of researches. However, the sample and methodologies different from one researcher to another due to the area, which the studies covered and the studies' objectives. Moreover, the financial ratio used by the researchers are differ depending on the data availability, and the theoretical bases used by analysts. The financial ratios used by different researchers reflected the management practice, policies and the strategies applied by the banking industry, and other economic condition to the performance and profitability of the banks.

The theoretical literature emphasized on the management practices, assets and liabilities management, the safety of the banks, trust by the community, aggressive lending, cost control, and innovation of the new financial instruments as factors influencing the banks profitability and performance.

CHAPTER THREE

Research Methodology

3.1 Introduction :

The research methodology applied is based on that of Bourke's (1989), Molyneux and Thornton (1992) to evaluate the determinants of banks profitability in Bahrain, with slight changes in the dependent and independent variables by adding and deleting variables to reflect domestic study.

3.2 Prior studies:

Bourke (1988), reviewed the performance of banks in twelve countries and states (Australia, California, Massachusetts, New York, Canada, Ireland, England, Wales, Belgium, Holland, Denmark, Norway and Spain). He examined the internal and external determinants of bank profitability, the samples of the study covered 90 banks in twelve countries or territories. The banks included in the sample were every bank in those countries or territories, which fell within the top 500 banks in the world ranked by the total assets (in June 1980).

The data was gathered from the bank's financial statements of each year from 1972 to 1981 of the twelve countries. However, the data is a pooled time series cross-section, where parent banks and subsidiaries are both included .

Bourke implement the linear function in the form

$$Y = C + a_1 X_1 + a_2 X_2 + \dots a_n X_n$$

to represent the dependent and independent variable .

Where Y is the dependent variable [i.e., the profitability ratios of the banks which includes: (1) Return on Capital (net income before and after tax as a ratio of total capital including all reserves); (2) Return on Assets (net income before tax as a ratio of total assets); (3) Value added return on total assets] and C is the constant term. While the X_1 to X_n are the independent variables [i.e., the internal and external factors that may affect the banks profitability which consists of: Staff expenses; Capital ratios; Liquidity ratio; Concentration ratio; Government ownership; Interest rates; Market growth; and Inflation.

He implemented the multiple linear regression model as statistical technique.

Bourke found that: (1) capital ratios, liquidity ratios and interest rates were positively related to return on assets and return on equity; (2) staff expenses showed an inverse weak correlation with pre-tax return on assets; (3) concentration is shown to be moderately and positively related to pre-tax return on assets. However, when used in equations having one of the measures of value added as dependent variable, the sign of the relationship changes to an inverse relationship.

A study by Molyneux and Thornton (1992) reviewed the determinants of European bank profitability. The sample of his study contained 671 banks in 1986, 1063 banks in 1987, 1371 banks in 1988 and 1108 in 1989 which were taken from eighteen European countries. To eliminate the accounting standard, they obtained the banks data from International Bank Credit Analysis Ltd (IBCA). Molyneux and Thornton replicated Bourke's methodology. They found that, a statistically significant positive relationship between (concentration, nominal interest rate, government ownership, capital ratio and staff expenses) with the return on assets and return on capital. They also found a weak inverse relationship between the liquidity ratio and return on assets and return on capital.

In Bahrain, Abbas (1991) conducted a study to examine the internal and external determinations of bank profitability. The sample of the research contained data of the three largest banks in Bahrain from 1979-1987. These are, National Bank of Bahrain, Bank of Bahrain and Kuwait and Al Ahli Commercial Bank.

He used the consolidated figures of balance sheet and profit and loss account of the above three banks. The multiple regression in a linear function form had been used and time series data analysis.

The dependent variables were, return on assets, return on capital and value added return on total Assets. The independent variable were, liquidity ratio, capital ratio, government ownership, concentration, interest rate, Growth in money supply, consumer price index, staff expenses as % of total Assets.

He stated in his result that, capital ratios, liquidity ratios and interest rate are positively related to profitability. Staff expenses showed an inverse and weak correlation with return on asset.

The result in relation to concentration showed weak correlation with net profit as a percentage to capital and reserves. However, there is a significant positive correlation between concentration and capital which reserves as percentage of total assets. It has an inverse relationship with other independent variables.

Inflation results, showed significant positive correlation with the bank profitability, but there was inverse correlation with staff expenses as % of total assets.

A recent study by Abdulla (1993) on determinants of performance of the local commercial banks over the period between 1984 and 1991. The data sources were the annual report of the commercial banks. The data was pooled, similar to Bourke (1988) and Molyneux and Thornton (1992) to increase the numbers of observations to obtain sufficient degree of freedom in regression analysis. Abdulla applied the cross-sectional heteroskedasticity and time-wise autoregressive model discussed by Kementa (1986) to estimate a linear equation. The dependent variables used to represent the banks performance were the return on assets and return on equity. While the independent variables were capital ratio, operating expenses to total deposit, bank's private deposit to total deposit, liquidity ratio, size, dummy variable represent the effect of the Gulf crisis of 1991 and 1992, concentration ratio, government ownership - dummy variable, bank's loan portfolio and risk - total advance to total deposit.

The result showed that, government ownership, concentration ratio, loan ratio, private deposit and capital ratio have statistically significant positive relation with the performance of the local commercial banks in Bahrain. However, the result showed high significant negative relationship, between operating expenses and bank's size with the performance measurement. The Gulf crisis and loan to deposit showed insignificant negative relationship with the performance of the banks.

In summary, the previous studies (international or local) agreed to use the linear function to represent their models. The multiple regression was used in all the studies dealing with this kind of research. Moreover, the data were pooled as in the studies by Bourke's (1989), Molyneux and Thornton (1992) and Abdulla. The cross-section analysis and the time series cross-section analysis used by Bourke, Molyneux and Thornton, reported no difference in the result obtained from the two methods.

The above studies showed similarity in using the return on assets and return on equity to represent the profitability or banks performance. However, Abdulla used different independent variables than Bourke, Molyneux and Thornton. This is due to the nature and objectives set for the studies. Abdulla studied the factors that affected commercial banks locally covering one country, where Bourke, Molyneux and Thornton studied the factors affecting the commercial banks covering many countries.

3.3 Research Hypothesis :

To achieve the purpose of the study the following hypotheses has been formulated .

1. There is a positive relationship between the return on assets and return on capital with, the capital ratio, size, interest rate, government ownership and loan to total assets ratio.
2. There is an inverse relationship between the return on assets and return on capital with the operating cost, liquidity ratio and interbank deposit to total deposit.

3.4 Data Gathering Methods :

The data of the present study are the published balance sheets and profit & loss accounts of 18 commercial banks in Bahrain from 1984 to 1991. The reason for the selecting the 18 commercial banks was due to unavailability of the data of Rafidain Bank in 1990 and 1991, as well as National bank of Abu Dhabi in 1991. Further, the reason of choosing this period is that, the data of Bahrain Saudi Bank was only available from 1984 because of its establishment in 1983. The cross checks were made to compare the data with another resource such as the annual report of local commercial banks and with the Bahrain Monetary Agency. (Annual Report 1991)

3.5 Data Description :

The study depends on the data of 18 commercial banks in Bahrain from 1984 to 1991. The commercial banks in Bahrain consist of two groups: The Local commercial Banks and branches of the Arabian and International banks where their head quarters are in their home countries. The data which is used in this study represent the activities in Bahrain Market excluding the Offshore Banks Unit (OBU) and overseas branch activities. The commercial banks under study are represented in table No(3.1) .

Table No.(3.1)

Commercial Banks in Bahrain by Established year

No.	Bank	Establ- ished Year	No.	Bank	Establ- ished Year
1	National Bank of Bahrain	1957	10	Citibank	1969
2	Bank of Bahrain& Kuwait	1972	11	Chase Manhattan	1971
3	Bahrain Islamic Bank	1979	12	Algemene Bank Nederland	1975
4	Al-Ahli commercial Bank	1978	13	Habib Bank Ltd	1969
5	British Bank of M. East	1944	14	Banque Paribas	1975
6	Standard Chartered	1920	15	Arab Bank Ltd	1960
7	Bahrain Saudi Bank	1983	16	Bank Saderat Iran	1974
8	United Bank Limited	1969	17	Banque du Cairo	1972
9	Grindlays Bahrain Bank	1973	18	Arab Bank Ltd	1960

Source : Bahrain an international financial center a BMA Publication 1991

3.6 Data Source :

The main source of the data is the Bahrain Monetary Agency, which provided published data of the Balance Sheets and Profit & loss accounts of all commercial banks in Bahrain from 1983 to 1991. The profit and loss statements contain the data of the net interest income, other income, total income, provisions for bad & doubtful debts, total operating cost and net profit. The balance sheet-assets consist of cash and cash with BMA, deposit with other office, deposit with banks, advances & discounts and other assets. In contrast, the liabilities side of the balance sheet contain the capital & reserve, deposits due to other office, deposits due to banks and other. In addition, the inter banks

interest rate were obtain from the Bahrain Monetary Agency. Gross Domestic Product data has been gathered from Ministry of Finance and National Economy (National Account).

In spite of the difficulty to obtain the data of all commercial banks in Bahrain, I got help from the Assisting Under Secretary of the Economic Affairs for the Ministry of Finance and National Economy, who wrote a letter to the General Director of Administration and Research in BMA, to assist me in getting the historical data of the commercial banks in Bahrain.

3.7 The Model of the Study :

According to Bourke (1988), the literature generally come to the conclusion, that the appropriate functional form for testing is a linear function form. "Short (1979) investigated this question and concluded that, 'linear function produced as good as any other functional form'. The Davidson, Godfrey, MacKinnon (1985) conduct a specification test of the linear function where they supported the use of the linear function". [cited from Bourke study]

In addition, Bourke's(1989), Molyneux and Thornton (1992), Abbas (1991) and Abdulla (1993) used the functional form in their researches.

Accordingly, in this study the linear functional form of testing has been used in the form :

$$Y = C + a_1 x_1 + a_2 x_2 + \dots + a_n x_n$$

where Y is the dependent variable, C is the constant term, and x_1 to x_n are the independent variable i.e the internal and external factors, which may be effect the commercial banks profitability .

3.8 The Dependent Variables :

The most financial ratios which represent the profitability of the firm, are Return on Assets (ROA) and Return on Equity (ROE). Gironx & Rose (1981) and redericks (1990) suggested the best measure of the Banks profitability are by the above ratios. Bourke (1988) used the (ROA) ratio and return on capital (ROC)and value added return on total

Assets i.e (i) The ratio of net income before taxes + staff expenses to total assets. (ii) The ratio of net income before taxes + staff expenses + provision for loan losses to total assets as a proxy gross margin, to represent the banks profitability as dependent variables in his model .

Therefore, the dependent variables in this study are :

- Return on assets (ROA) = Net profit /Total Asset .
- Return on capital (ROC) =Net profit / capital + Reserve.

3.9 The Independent Variables :

The main reasons for choosing the independent variables are:

1. Availability of the data to calculated the financial ratios.
2. Used by other researches to validate the result.
3. Have a theoretical background as factors, which affects the banks profitability.

Therefore, the independent variables, that were used in the model to represent the factors which affect the bank profitability ratios are as follows:

- (a) Capital ratio (**CAPITAL**): the capital including reserves as a percentage of total assets. It was used by Bourke(1988), Molyneux and Thornton (1992), Abbas (1991) and Abdulla (1993), and suggested in different literature, such as [Short (1979), Bell and Murphy (1969) and Kwast & Rose (1982)] cited from Bourke study. It is a measure of the capital adequacy of the banks. The capital perform the function as to recover the losses of financial assets, and the expansion when it is needed. The adequacy of capital increase the public trust, which increases the banks' activities in term of loan and deposit of the community. Llewellyn (1988) and Reed & Gill (1989).

Positive relationship of this ratio with the return on assets and return on equity is expected, because of the findings of other researchers.

- (b) Liquidity ratio (**LIQ**): cash plus corespondent deposit in other banks to total assets was used to represent the liquidity ratio. The main function of the liquid assets is to meet the deposit withdrawals. But at the same time, the bank which maintain too much liquidity loses interest income. Cargill (1986)

In addition, Liquidity ratio was used by Bourke(1988), Molyneux and Thornton (1992), Abbas (1991) and Abdulla (1993). The negative relation of the liquidity ratio is expected, with the return on assets and return on equity, due to the opportunity cost of investing the liquid assets in other assets which earn more return. In addition, Molyneux and Thornton found a weak inverse relation ship between liquidity and the return.

(c) Operating cost to total Assets ratio(**OPERT**): the literature suggested staff expenses to total assets such as Bourke (1988), Molyneux and Thornton (1992). But, the data about staff expenses are not available, and the operating cost can be used as a proxy to the overhead expenses, taken into account that the main expenses of the operating cost are staff salaries and benefits, because the interest paid is not included in this ratio. The negative relationship with the profitability is expected, since operating cost is the main expense of the banks activities and supported by prior research findings.

(d) Advances & discount to total assets (**LOANASS**): this ratio measures the portfolio mix (or composition) indicator of the total assets of the commercial banks Gironx and Rose (1981). A positive relationship of this ratio with the return on assets and return on equity are expected. i.e increasing the risk by providing more loan and facility to customers increase the expected rate of return. This ratio was used by Abdulla (1993) in his model.

(e) Government ownership (**GOV**): A dummy variable was used where one represents the government ownership in the banks is included, and zero otherwise. In this study (1) represent the National Bank of Bahrain due to 51% of stockholding owned by government and Bank of Bahrain and Kuwait

(indirect owned by government) by government pension fund. In contrast, zero represents non government ownership. Molyneux and Thornton (1992) used this variable, and found that the government ownership of the bank correlated inversely with profitability. However Bourke (1988), Abbas (1991) and Abdulla (1993) found a

positive relationship of government ownership with the profitability. Therefore, I expected, that a positive relationship between the profitability and the government ownership.

- (f) Interbank deposit to total Deposit (**BDEP**): measure the composition of the banks deposit and how it effects banks profitability, i.e the deposit of the other banks to total deposit. Abdulla (1993) used the banks' private deposit to bank's total deposit. A negative relationship is expected.
- (g) Bank's size (**SIZE**): similar to Abdulla (1993) size of the bank is measure by the logarithm of the bank's total assets. Positive relationship with the profitability is expected.
- (h) Interest Rate (**INTER**): The annual nominal interbank interest rate was used in present project. Bourke (1988), Molyneux and Thornton (1992) used the nominal interest rate and found a positive relation with the profitability. Likewise, I expected a positive relation of the interest rate with the profitability ratios.

3.10 Statistical Techniques :

The main statistical techniques used in this study are the correlation and multiple regression techniques. The Spearman's rank correlation coefficient between the two variables was used. The pooled cross section time-series techniques are used where the regression equation can be written as :

$$Y_{it} = X_{it} \beta + \epsilon_{it} \quad \text{for } i = 1, \dots, N \quad t=1, \dots, T$$

where, N is the cross-section unit and T is the time period .

The β is a $K \times 1$ vector of unknown parameters and ϵ_{it} is a random error. The parameter can be estimated by GLS. (shazam user manual p36 and p241,243 version 7.0 (1993)).

This technique was used through a famous econometrics computer package (SHAZAM) version 7, which has the facility for pool time series cross-section analysis and suppress the autocorrelation correction, so that only the heteroskedastic correction is performed .

The pooling technique described in Kmenta [1986, Section 12.2, PP. 616-625] (cited from SHAZAM manual) employs a set of assumption on the disturbance covariance matrix, that gives a cross-sectional heteroskedastic and timewise autoregressive model.

The assumption of the Kmenta model are:

$$E(\varepsilon_{it}^2) = \sigma_i^2 \quad \text{heteroskedasticity}$$

$$E(\varepsilon_{it} \varepsilon_{jt}) = 0 \quad \text{for } i \neq j \text{ cross- section independence}$$

$$\varepsilon_{it} = \rho_i \varepsilon_{i,t-1} + v_{it} \quad \text{autoregression}$$

Therefore, we run the program to calculate the Spearman's correlation to help us to find the association between the variables and diagnoses, to find out if there is a multicollinearity exist between the independent variables. After that, the coefficients of the multiple linear regression of the time series cross-section estimated by the program with an information about the significant test .

3.11 Software Used in the Study :

The software used in the study are: (1) Excel as an spreadsheet program where all the data has been entered and classified by one file for each year, which contained the balance sheet and the profit and loss account of the commercial banks. In each file the financial ratios were calculated. (2) Shazam as an econometrics statistical package, which has been used to run the pool cross-section analysis and calculate the correlation and the test the significant of the t and f distribution.

3.12 Conclusion:

This chapter represent the research hypothesis where it was assumed, that there is a relationship between the dependent variables (the profitability ratios) and the independent variables (the factors that may effect on the bank profitability). The data used is the secondary data, which was obtained from the annual reports of all the commercial bank in Bahrain. The main source of the data is the Bahrain Monetary Agency. In addition, the data used in the analysis of this research reflected the activities of Bahrain market only, which excluded parent and the branches of commercial bank outside Bahrain. Moreover, the statistical technique used in this study was the pool time series cross-section analysis

using the GLS in the multiple linear regression through the econometrics statistical package (SHAZAM) .

CHAPTER FOUR

Analysis and Findings

4.1 Introduction :

This chapter analyze the result of the descriptive analysis, the correlation matrix and multiple regression in the pool time series cross-section analysis. The period covered by the study is 1984 to 1991. The findings and conclusion will follow the result of analysis.

4.2 Descriptive Analysis (Mean & ST.DEV):

Table (4.3) shows the descriptive analysis of the selective financial ratios, which represent the dependent and independent variables. One can notice that, the numbers of observations are 144 (18 commercial banks by 8 years - from 1984 to 1991). The mean of the variables represent the arithmetic average of the observations for all the years under study.

4.3 Correlation :

The Spearman rank correlation has been used. (table 4.4) The correlation analysis is one of several methods used to observe the multicollinearity if it exist in the model. This is a rule of thumb suggested by Gujarati (1988) as he stated P299 " if the pair-wise or zero-order correlation coefficient between two regression is high, (0.8), then multicollinearity is a serious problem".

The Spearman's rank correlation matrix table (4.4) show that, there is no strong correlation, which exist between the independent variables except the inverse relationship between loan to total assets ratio and liquidity ratio by(0.763). This inverse relationship is expected because if banks' policy is to use the available resources (mainly deposit) more in liquid assets rather than invested in loans, the liquidity ratio increases while the loan decreases and vice versa. Reed and Gill (1989). However, the expectation of multicollinearity could exist according to high collinearity between liquidity ratio and loan to total assets ratio. As suggested by Mcguigan and Moyer (1989), and Gujarati (1988), the removal of one independent variable which has high collinearity, to eliminate

the multicollinearity in the model. Hence, this approach has been applied in the present study. The procedure followed in running the regression model was first used all variables, second without the liquidity ratio, and third without the loan to assets ratio.

4.4 Multiple linear regression analysis :

The multiple regression analysis has been used by a number of researchers in studying the factors effecting the performance of the commercial banks, such as Bourke (1988), Molyneux (1992), Abbas(1991) and Abdulla (1993).

Short (1979) investigated the linear equation and concluded that 'linear function produced as good as any other functional form'. [cited from Bourke study (1988)]. Moreover, Kolari, Mcinish and Saniga (1988) investigated the financial ratios of commercial banking industry in United States from 1976-1983. The result shows that the financial ratio are normally distributed in three different shapes. In addition Abdulla (1993) found that the dependent and independent variables are not departed from normality. The financial ratios he used are approximately similar to the financial ratios used in the present study.

In the present study the data was pooled and multiple linear regression of time series Cross-section analysis was applied.

The criteria to select the best model depended on the values of the Buse Raw-Moment R^2 , the significance of the estimated parameters and the magnitude of Durbin-Watson statistic. The Buse-Moments R^2 shows the strength of the regression line and the slop of the linear equation. The test of significance is a procedure by which sample results are used to verify the truth or falsity of a null hypothesis. Gujarati (1988). The Durban-Watson diagnoses if there is an autocorrelation exist in the model.

In addition, in both regression models (ROA) and (ROC), the value of (ρ) are fixed to be equal in the all period. It is specified by using the option $RHO=0$ in order to suppress the autocorrelation, so that only the heteroskedastic correction is performed. (SHAZAM P. 245). Where ρ is the coefficient of autocovariance [$\rho = \Sigma e_t e_{t-1} / \Sigma e_t^2$]. It

is clear from the relation between the Durbin - Watson test and ρ . where $d = 2 (1 - \rho)$. Therefore, If $\rho = 0$ then $d = 2$, that is no serial correlation of the first order. Gujarati (1988).

4.5 The regression result:

The regression model used the return on assets (ROA) as a dependent variable. The first run included all the independent variables, the Buse Raw-Moment $R^2 = 0.255$, Durbin-Watson = 1.944, and there were five independent variables which were significant. In the second run, the liquidity ratio was removed from the equation. The result shows that, the Buse Raw-Moment $R^2 = 0.238$, the Durbin-Watson = 1.951 and five independent variables are also significant. In the third run, the loan to total assets were removed while the liquidity ratio was included in the model. The result showed, the Buse Raw-Moment $R^2 = 0.248$, Durbin-Watson = 1.947 and five independent variables were significant.

From the above, we can notice, that regression line and the autocorrelation measurement was not effected much by removing those independent variables, which are suspicious to have collinearity. Therefore, the regression equation which contained all the independents variables was decided to be used in the process of analysis. Table (4.5) represents the regression model of return on assets.

Moreover, the same method of removing the suspicious independent variables has been applied for the return on capital (ROC) model. The same result was obtained. The removal of the liquidity ratio one time and loan to assets ratio another time did not improve the regression equation. Hence, the model of the (ROC) was presented with all the independent variables to be the base of analysis. The regression equation of this model has Base raw-Moment $R^2 = 0.0985$, which means it is a very low correlation associated between the dependent and independent variables. The Durbin-Watson 1.82, which means an autocorrelation may exist in this model. The model of (ROC) is presented in table (4.6).

4.5.1 Capital ratio(Capital):

The result of the regression in the (ROA) model shows that, there is a positive statistical significant relationship between the capital ratio and return on assets. It is significant at 0.01. However, in the (ROC) model the capital ratio has a positive relation with the return on capital but not statistically significant. This positive relationship between the profitability ratio and the capital ratio was expected. According to Shrieves and Dahi (1991), managers whose banks have high risk asset portfolios may compensate for increasing in assets risk by setting low leverage (High capital) and vice versa, thus giving rise to a positive relation between changing in risk and capital and between changes in capital and risk.

Furthermore, a commercial bank with an adequate capital will enjoy trust from their investors and the public, who will encourage more deposits than his rival banks. The management of well capitalized banks will have more freedom to innovate new instruments in credit facilities or adapt new technology in the control process (using advanced technology in the information system) with new services to their customers (teller machines + telephone Inquiry , ..etc.). Similar result was reported by Bourke (1988) and he speculated that, " well capitalized banks enjoy access to cheaper (because less risky) resources of funds or that the prudence implied by high capital ratios is maintained in the loan portfolio with consequent improvement in profit rate".

Moreover, Molyneux (1992), Abbas (1991), Abdulla (1993) have found positive relation between the capital ratio and the profitability ratios in their studies.

4.5.2 Liquidity ratio:

The analysis showed in the regression model of (ROA) and (ROC), there is an inverse relationship, between the liquidity ratio and the return on assets and return on equity but statistically insignificant. The result expressed, that the lower liquidity ratio the higher the return. The possible financial explanation of this finding could be: firstly, there is an opportunity cost when the banks have high liquidity ratio in the assets portfolio. The banks will lose the opportunity to invest in assets, which are more income

bearing (advances and discount). According to Cargill (1986) "The bank must maintain a certain amount of liquidity to meet deposit withdrawals, but at the same time, if it maintains too much liquidity, it loses interest income".

Furthermore, this finding is similar to Molyneux (1992). He found a weak inverse relationship of liquidity ratio with profitability ratio. In contrast, it is opposite of what Bourke (1988) and Abbas (1991) found. They found a positive relationship between the liquidity ratio and profitability.

4.5.3 Operating cost to total assets:

This ratio measures the cost control and as a proxy for the staff expense, where the data about staff expenses are not available. The operating cost consists mainly of staff salaries and benefits, because the interest paid is not included and the other expenses such as advertising, insurance, have low percentage compared with the salaries.

The two models (ROA) and (ROC) show a negative relationship between the operating cost and the profitability ratio. This was expected. It is statistically significant in the ROA model at 0.1 while it is statistically insignificant in the ROC model. Therefore, the lower the ratio of operating cost to total assets the better the bank performance. Operating cost is an essential factor affecting the commercial banks profitability. The strategy of cost control was suggested by many financial analysts for example Fredericks 1990.

Management of the commercial banks in Bahrain should formulate clear strategies for cost control. Especially due to the present slow growth of economy, further lower interest rates and competition between the commercial banks are also increasing.

It is worth mentioning here that, the findings of this research are similar to other researchers at both local and international level such as Bourke (1988), Abbas (1991) and Abdulla (1993), who found an inverse relation between the operating cost or staff expense to total assets with the profitability ratio. However, Molyneux (1992) found a strong positive relation with before-tax return on assets. Molyneux suggested that high

profits earned by firms in a regulated industry may be appropriated in the form of high payroll expenditures.

4.5.4 The loan to total assets ratio:

This ratio measure portfolio mix indicator of the total assets for the commercial banks. The high proportion of loan relative to total assets normally increases the profitability of the bank. The loans or advances and discounts are the higher risk categories in the bank portfolio of the assets. These risks are due to a lack of secondary market for most of investments in loans. Secondly the risk related to uncollectable interest and loans. These two types of risks increase the expected rate of return required by the bank's management.

The regression result show, that there is a statistically significant negative relationship between the profitability ratios and the loan to total assets at 0.1. This negative relationship is unexpected due to the main contribution of the loan to the banks revenue.

This result can not be explained, in reality the advance and discounts are the main factors effecting positively the contribution of the banks return. The regression result has no theoretical support.

However, the possible explanation may be (1) the commercial banks in Bahrain faced problems in collecting the interests, or the loan in the period under study from 1984 to 1991. (2) The data used in the study represents the activities of the Bahrain market only. It is possible to speculate, that a lot of lending have been made to companies outside the Bahrain market.

4.5.5 Government ownership :

Government of Bahrain has a direct investment as a shareholder of National Bank of Bahrain (NBB). It has an indirect investment through the pension funds in Bank of Bahrain and Kuwait (BBK). In this study a dummy variable was used to represent government ownership. In the sample NBB and BBK were considered as partially government owned.

The regression analysis in both models show a weak positive relationship between the profitability and the government ownership, which is statistically insignificant. This relationship is expected due to, firstly, support of the government to the NBB and BBK directly and indirectly. Secondly, the commission and charges to the government transactions by NBB give an advantage over the other banks.(3) public trust with the banks that have government shareholders.

Further, the finding is supported by Bourke (1988), Molyneux (1992), Abbas(1991) and Abdulla (1993), who found a significant positive relationship between the government ownership and the profitability.

4.5.6 Interbank deposit to total deposit :

The commercial banks depend on deposits to fund their activities. The banks focus heavily in attracting more customers to deposit with the bank .

In addition, the banks pay more interest on the banks deposit than private deposits. One can compare the statistic which show private deposit interest for three months was 7.5 % at 1989, while it was 8.63 % inter-bank interest rate at the same year.(BMA annual report 1991 and daily interbank interest rate at end of December 1989)

The regression model in the return on assets (ROA) and return on capital (ROC) showed that, there is a statistically significant negative relationship between the interbank deposit and profitability. This relationship was expected. The higher percentage of interbank deposits to total deposits, increase the cost of the banks because the bank will pay more interest (as shown in the above statistic) than the other deposit (public and companies).

4.5.7 Bank's Size :

The bank size was measured in the present research as a logarithm of the total bank's assets. Normally, the size of the organization increase the economies of scale, and hence increase the profitability by reducing the operating cost. The regression result of the ROA and ROC models show a significant negative relationship between the bank's size and

profitability. It seem that, in Bahrain market the small banks perform better than the large banks.

The financial analysts and researchers found different results. One party stated that the small banks perform better than the large one for example Watt (1992), and the other party who stated the opposite such as Reed and Gill (1989). (for more detail refer to the chapter 2 -p11 in this study) . In addition, Abdulla (1993) used the log of the total assets of banks to measure the size and investigate its effect on the banks performance. He found that, there are an inverse relationship between the banks performance and the banks size.

4.5.8 Interest rate :

The result of the regression of the ROA and ROC, show an insignificant negative relationship between the interest rate and banks' profitability.

This finding is unexpected due to the other research findings. However, the finding is statistically insignificant, but a possible explanation could be: (1) the high interest rate, increase the banks cost. (2) the lower interest rate encourage the investors and the public to borrow from the banks.

4.5.9 Conclusion :

The multiple regression model of the ROA and ROC of the pool time series cross-section show that, there is a positive relationship between the capital ratio and government ownership with the banks profitability ratios. However, there is a negative relationship between the liquidity ratio, operating cost, interbank deposit to total deposit, interest rate and size with the banks profitability ratios.

CONCLUSION

The main purpose of the present study is to implement an academic research to highlight the main factors, that affect the commercial banks profitability in Bahrain. The sample consist of 18 commercial banks, six of them are local commercial banks and the others are branches of foreign banks. The period covered in this study was from 1984 to 1991. The data are gathered from Bahrain Monetary Agency which consist of the profit and loss accounts and the balance sheet of the commercial banks from 1984 to 1991. The methodology applied in this study is a multiple linear regression of time series cross-section of the pooled data under-study. The econometrics computer package (SHAZAM) was used to calculate the correlation and the multiple regression. The profitability measurement which were used are the return on assets (ROA) and return on capital (ROC). These measurement were used as dependent variables in the regression models.

According to the data availability, theoretical support and the prior studies, the independent variables were chosen. The independent variables are, capital ratio, liquidity ratio, operating cost to total assets, loan to total assets, government ownership, interbank deposit to total deposit, bank's size and interest rate.

The result shows in both models ROA and ROC that, there is a positive relationship between the profitability ratio with capital ratio and the government ownership. The relation with the capital ratio is statistically significant, while it is not statistically significant with the government ownership.

On the other hand, the result shows there is an inverse relationship between the profitability ratios and operating cost, liquidity ratio, interbank deposit, size and interest rate. The relation with the operating cost, interbank deposit and size are statistically significant, while it is not significant with the liquidity ratio and interest rate. The readers should not be confused with this finding

Firstly, the statistical relationship between the capital ratio and return on assets and return on capital does not mean that, the higher the ratio of the capital will increase the return on assets or return on capital. It means, that adequate capital is needed to support the infrastructure and protect against various forms of risk, that might affect a bank's ability to service its liabilities.

Moreover, in Bahrain market it seems that, the commercial banks have an average between 10 % to 12 % capital ratio (table 4.2) for the years under study. This ratio is adequate to service the banks operations.

Secondly, the large banks theoretically have an advantage of economies of scale. However, in Bahrain market where the market is small with limited population has no major effect on the commercial bank profitability. This does not mean the large banks did not make a profit, but it means that the small banks make more profit than the large banks .

Thirdly, the liquid assets as an inverse relation with the profitability ratios which indicate that, bank's management should be concerned about the level of the liquidity ratio. The better management of this factor could increase the banks profitability.

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Table No. (4-2):

The financial ratios of 18 commercial banks in Bahrain
from 1981 to 1991 (Bahrain operation only)

year	ROA	NP/C&R	Opr. cost/ T.ASSET	PROVISIONS FOR LOAN LOSS/LOAN	loan/ T.assets	Contribution of Financial sector to GDP
1981	1.44%	14.48%	1.80%	0.00%	42.64%	19.90%
1982	1.92%	16.91%	1.99%	0.00%	40.00%	26.00%
1983	2.31%	16.55%	1.93%	1.07%	53.62%	28.10%
1984	2.38%	15.02%	1.99%	1.24%	54.39%	27.70%
1985	1.73%	11.35%	2.05%	1.62%	49.77%	24.10%
1986	1.08%	7.20%	1.95%	2.24%	47.91%	24.20%
1987	0.30%	2.35%	1.81%	3.63%	46.17%	18.90%
1988	-0.03%	-0.27%	1.98%	5.48%	33.75%	22.40%
1989	0.90%	8.47%	1.77%	3.90%	28.38%	20.80%
1990	0.39%	3.67%	2.07%	3.43%	32.93%	18.00%
1991	1.35%	12.78%	1.95%	0.92%	35.34%	17.20%

source:

- Bahrain Monetary Agency
- National Account - Ministry of Finance and National Economy

TABLE (4.3)
DESCRIPTIVE ANALYSIS OF THE VARIABLES

NAME	N	MEAN	ST. DEV	VARIANCE	MINIMUM	MAXIMUM
ROA	144	9.45E-03	7.70E-02	5.93E-03	-0.46768	0.62954
ROC	144	-2.29E-02	0.70962	0.50356	-6.4842	0.738
CAPITAL	144	0.12082	0.11631	1.35E-02	8.79E-03	0.99192
LIQ	144	0.48134	0.22266	4.96E-02	1.78E-02	0.96828
OPERT	144	2.72E-02	1.63E-02	2.65E-04	9.84E-03	9.49E-02
LOANASS	144	0.41969	0.22929	5.26E-02	0	0.98142
GOV	144	0.11111	0.31537	9.95E-02	0	1
BDEP	144	7.28E-02	0.11879	1.41E-02	0	1
SIZE	144	5.4056	0.56406	0.31816	3.3897	5.8316
INTR	144	7.56E-02	1.03E-02	1.06E-04	6.20E-02	9.50E-02

TABLE (4.4)

SPEARMAN RANK CORRELATION MATRIX - 144 OBSERVATIONS

NAME	ROA	ROC	CAPITAL	LIQ	OPERT	LOANASS	GOV	BDEP	ZISE	INTR
ROA	1									
ROC	0.86372	1								
CAPITAL	0.38422	6.88E-02	1							
LIQ	2.55E-02	2.18E-02	-0.13865	1						
OPERT	-0.16704	-0.15872	4.06E-03	2.35E-02	1					
LOANASS	-0.14636	-6.17E-02	-8.49E-02	-0.76345	-2.20E-03	1				
GOV	7.22E-02	-6.45E-02	0.27668	2.85E-02	-0.29934	-0.1572	1			
BDEP	0.14101	8.90E-02	0.12174	0.20676	-0.30568	-0.14316	-0.12224	1		
SIZE	-0.11836	-0.10107	6.45E-03	8.86E-02	-5.90E-02	-0.11764	0.58151	-0.21326	1	
INTR	1.32E-03	-1.05E-02	2.00E-02	3.27E-02	3.05E-02	-0.12052	-2.43E-02	-0.10544	-0.39926	1

TABLE (4.5)

REGRESSION RESULT OF RETURN ON ASSETS (ROA) MODEL

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO 135 DF	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
CAPITAL	6.54E-02	2.17E-02	3.018	0.998	0.251	0.0988	0.8369
LIQ	-1.67E-02	1.41E-02	-1.184	0.119	-0.101	-0.0484	-0.8531
OPERT	-0.20647	0.1385	-1.49	0.069	-0.127	-0.0436	-0.5948
LOANASS	-2.61E-02	1.42E-02	-1.833	0.034	-0.156	-0.0777	-1.1592
GOV	2.84E-03	6.64E-03	0.4274	0.665	0.037	0.0116	0.0334
BDEP	-2.91E-02	2.06E-02	-1.412	0.08	-0.121	-0.0449	-0.2243
SIZE	-1.37E-02	4.54E-03	-3.008	0.002	-0.251	-0.1	-7.8163
INTR	-0.23879	0.2094	-1.14	0.128	-0.098	-0.032	-1.9115
CONSTAN	T .11928	3.77E-02	3.166	0.999	0.263	0	12.6273

DURBIN-WATSON = 1.9441 VON NEUMANN RATIO = 1.9577 RHO = -.10501

RESIDUAL SUM = 1.3457 RESIDUAL VARIANCE = .84677

SUM OF ABSOLUTE ERRORS = 77.734

R-SQUARE BETWEEN OBSERVED AND PREDICTED = .1839

RUNS TEST: 57 RUNS, 69 POSITIVE, 75 NEGATIVE, NORMAL STATISTIC = -2.6598

BUSE R-SQUARE = -.0260 BUSE RAW-MOMENT R-SQUARE = .2552

VARIANCE OF THE ESTIMATE-SIGMA**2 = .84677

STANDARD ERROR OF THE ESTIMATE-SIGMA = .92020

SUM OF SQUARED ERRORS-SSE = 114.31

MEAN OF DEPENDENT VARIABLE = .94459E-02

LOG OF THE LIKELIHOOD FUNCTION = 302.082

TABLE (4.6)

REGRESSION RESULT OF RETURN ON ASSETS (ROC) MODEL

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO 135 DF	P-VALUE	PARTIAL CORR	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
CAPITAL	8.44E-02	0.2285	0.3695	0.644	0.032	0.0138	-0.446
LIQ	-0.12551	0.1306	-0.9608	0.169	-0.082	-0.0394	2.6419
OPERT	-1.3283	1.418	-0.9367	0.175	-0.08	-0.0305	1.5807
LOANASS	-0.20129	0.1333	-1.51	0.067	-0.129	-0.065	3.6943
GOV	3.25E-02	7.07E-02	0.4594	0.677	0.04	0.0144	-0.1578
BDEP	-0.22463	0.2066	-1.087	0.139	-0.093	-0.0376	0.7147
SIZE	-6.32E-02	4.62E-02	-1.369	0.087	-0.117	-0.0502	14.9394
INTR	-2.6601	2.172	-1.225	0.111	-0.105	-0.0386	8.7956
CONSTANT	0.77584	0.4189	1.852	0.967	0.157	0	-33.9272

DURBIN-WATSON = 1.7569 VON NEUMANN RATIO = 1.7692 RHO = -.03270

RESIDUAL SUM = -4.2209 RESIDUAL VARIANCE = .66371

SUM OF ABSOLUTE ERRORS = 68.804

R-SQUARE BETWEEN OBSERVED AND PREDICTED = .0678

RUNS TEST: 67 RUNS, 78 POSITIVE, 66 NEGATIVE, NORMAL STATISTIC = -.9264

BUSE R-SQUARE = -.1668 BUSE RAW-MOMENT R-SQUARE = .0985

VARIANCE OF THE ESTIMATE-SIGMA**2 = .66371

STANDARD ERROR OF THE ESTIMATE-SIGMA = .81468

SUM OF SQUARED ERRORS-SSE = 89.600

MEAN OF DEPENDENT VARIABLE = -.22868E-01

LOG OF THE LIKELIHOOD FUNCTION = -7.09361