Determinants of profitability in Libyan commercial banks

A thesis submitted to the University of Gloucestershire in accordance with the requirements of the degree of Doctor of Philosophy in the Faculty of Business Management
By

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PhD

2012

Declaration

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference in the text. No part of the thesis has been submitted as part of any other academic award. The thesis has not been presented to any other education institution in the United Kingdom or overseas.

Any views expressed in the thesis are those of the author and in no way represent those of the University.

Esmaele Laour

Signed …Esmaele Laour..... Date ……1 / 03 / 2012.....

Abstract

This research employed the Statistical Cost Accounting Method on a sample of 4 public and 12 private banks operating in Libya during the period 1997–2008, in order to investigate the relationship between portfolio profits and (1) the effect of assets and liability composition, (2) and macro environmental variables, namely: bank-specific; industry- related; (3) and with macroeconomic variables. The sample was initially divided into three groups; the first group consisted of all Libyan commercial banks, the second group of public and private banks (a split necessitated by different forms of ownership), and the third group comprised high and low profit banks (a division created by comparing the average profit within the sector with the individual operating profit of banks). Also, the research analysis as to multiple regression analysis will be differentiated by three groups: (1) The first group incorporates all Libyan commercial banks; (2) The second group considers public and private banks separately; and (3) The third group incorporates high and low profitable banks separately. It was deemed necessary and helpful by the researcher to also use the qualitative method in the explanatory research in the second part of the analysis in order to triangulate, and, therefore, gain a fuller and deeper understanding of the research topic, in addition to eliciting more determinants of the profitability of the portfolios of Libyan commercial banks. The variables investigated through the collection of secondary data were subjected to quantitative analysis, while those examined by the interview phase were subjected to qualitative analysis. The conclusions of the research indicate that the relationship between profitability and assets and liabilities management have a significant effect on bank profitability. Thus, the higher returns on these assets are sufficient to create profitability differences between the banks.

The government ownership was found to be an important factor having an influence on profitability in Libyan commercial banks, whereby the impact is found to be negative on bank profits.

In addition, the unstable environment in terms of factors such as banking regulations, awareness by individuals about the role and importance of deposits banking, application of socialism, and the influence of religion are barriers to commercial banks expanding into investments in order to improve their portfolios to maximise their profits. The Central Bank of Libya was found to have a significant and negative on the portfolio behaviour of banks. In addition, it must be concluded that banking services and technology affect bank profitability negatively as well. Conversely, it is expected that the restructure of the banking sector will affect bank profitability positively, due to the improvement in the efficiency of indirect monetary policy tools. Furthermore, it is concluded that capital is important in accounting for bank profits, and that an increased exposure to credit risk tends to reduce profits and financial stability.

Disclaimer

The researcher was a member of staff in the Internal Auditing Department at the Central Bank of Libya, when he was writing this thesis. So the researcher is solely responsible for any errors or omissions in this thesis, thus, the interpretations and findings of this thesis should not be regarded as representing the views or attributes in any manner of the Libyan Central Bank.

Acknowledgments

I owe debts and am grateful to my directors of studies team Dr Ruediger Kaufman and Dr Xiaoling Hu, who provided me with their comments at different stages of this research and during orientations to develop this research. Thus, the research would not have been possible without their untiring support. The completion of this research was

due to the support of several Libyan government departments' such as the Libyan Central Bank, Libyan commercial banks, Ministry of Economy and General Authority for Information and Documentation.

In addition, I must express my appreciation to the Department of Business and Management Studies at Gloucestershire University, particularly Per Dvied and Dr Philippa Ward, also to the staff of the learning centre, particularly Price, Chris, Lynda and Anna for their help and support. Also, in this occasion, my deepest gratitude goes to my colleagues at the Central Bank of Libya and Libyan commercial banks for their contribution during various stages of this study, and my sincere thanks also to all the respondents to interviews and for their contribution in accomplishing this research. I also wish to express my feeling of gratitude to my Mother and Father who taught me truth, vigour, right, and knowledge. Without their knowledge, wisdom, and guidance, and without their prayers for my study and successful future, I would not have reached this stage, and also to my Sisters and Brothers who continually supported, encouraged, and motivated me during my years of study.

Table of Contents

In order to have accurate research data and produce new ideas and information, in addition to overcome any shortcomings of the research, the researcher must be able to

List of Figures

List of Tables

Appendix

Chapter one

Introduction of the research

1. Introduction to the research

1.1 Introduction

The Libyan banking sector plays an active role in the development of a distinctive national economy in the public sector, where it is still the main supporter of economic activity and development, and particularly since the decision to nationalise foreign commercial banks operating in Libya, taken on June 11, 1969. The Central Bank of Libya has started a strategic restructuring, development and modernising of the banking sector, aimed at improving the level of services to be equal to that of international banks. These political and economic reforms began with the issuance of Banking Law (9) 1992 and Government Law (134) 2006 which established market securities (the relevant legislation of the securities market). This was followed by Government Law (122) 2004 and Banking Law (1) 2005. These are among the policies contributing to the new restructuring of commercial banks, designed to develop a comprehensive programme of modernisation and improvement of the current performance of commercial banks, allowing them to achieve success in a freer and more competitive market.

The commercial banks and the banking sector in general are now facing challenges to cope with this phase, which has seen the gradual opening up of the banking sector to competition with international institutions, and the entry of new partners. This is in line with a desire to keep pace with modernity and develop competition in the banking industry. There is a great concentration on the performance and profitability of banks both by Libyan and foreign investors, who want to have a foothold in the Libyan banking market. Commercial banks play an important role as an implementing body for the central bank, and efficient resource mobilization also helps sustain economic growth (Roley, 1980 and Mishkin, 1998). The difference in the size and composition of a bank's portfolio plays an important role in transmitting the influence of the central bank's monetary policy to the economy.

This is because the composition of a bank's portfolio, such as, reserve requirement, loans, government bonds, net enter-bank, and Central Bank certificates, leads to a variable money supply. Thus, the importance of commercial banks has been discussed and emphasized frequently in the literature. Many research studies (Moore, 2003; Win, 2005; Zulverdi el at., 2007; Altunbas, 2010) have been conducted to investigate portfolio behaviour and bank efficiency, taking consideration of the Central Bank's monetary policy. Despite extensive investigation, no current studies have been located that were conducted in Libya. In examining the economic literature concerning the portfolios of commercial banks, there appears to be widespread evidence of stable and sound financial institutions. Several studies have been conducted in this respect to investigate how portfolios are affected by monetary policy, and what impact they have on the real economy. Thus, all sectors in the economy deal with commercial banks directly. The role of the commercial bank is that of a depositary of financial intermediaries (Roley, 1980; Ritter et al., 1997).

Consequently, any change in monetary policy has an immediate impact on commercial banks' portfolios and on the demand for credit. In the beginning of each period of the financial year, the return from each asset in a commercial bank's portfolio may be determined and its ratio in the overall profit may be calculated (Blair, 1978). The rate of return on bank portfolios can be represented in a utility function quadratic (Klein, 1970). Zulverdi et al., (2007) discuss the interrelation between banks' commercial portfolios and the utility and efficiency of monetary policy. An unstable economic environment has an impact on the performance of banks; this requires an increase in the adequacy of bank capital to face financial pitfalls (Koehn, 1980 and Win, 2005; Baum et al., 2009). Monetary policy has a large impact on the macro economy, during the change in money supply; consequently, it will influence the composition of a bank's portfolio (Silber, 1969; Win, 2005; Kohn, 2006).

Any change in the exchange rate by monetary policy carries risks for the portfolio of commercial banks, specifically when the exchange rate is uncertain (Makin, 1978). Monetary policy works on the evolution of an economy by influencing the price and yield of financial assets (Bernanke, 2004). Interest rate deregulation and capital requirement have an influence on bank portfolios, as suggested by Chun (1985) and Wachtel (1993). The mobilization and velocity of income will also impact on banks' portfolio composition (Silber, 1969). Capital regulation has an impact in terms of the cost of intermediation and profitability as a measure of bank performance (Kandil, 2007). Banks have a positive relationship with risk, as profits are derived from risky assets. All banks seek to maximize the utility function of their portfolio assets. Nevertheless, banks face the probability of failure unless portfolio regulations are followed (Russell, 1964; Blair, 1978; Fraser and Fraser, 1992; Kosmidou, 2004 and Asiri, 2007).

The capital account of banks change when there is a change or fluctuation in interest rates, impacting on a bank's portfolio (Samolyk, 1989). Capital inadequacy thus prevents a bank from investing in the optimal portfolio (Samolyk, 1989) and one of the problems confronting the allocation of a portfolio of a bank is the cost imposed by monetary authority (Elyasiani, 1995).

In the same connection, Haas et al. (2010) reported that small banks have a comparative advantage in lending to small customers; on the other hand large banks have a comparative advantage in lending to large companies. Depositors and consumption opportunity have an impact on a bank's portfolio during the operations of an important purchase. Legal restrictions can cause an increase is the fragility of the bank (Shell, 2003). Structural changes in banks and in the number of borrowers affect the smoothness and effectiveness of monetary policy to encourage economic growth (Zulverdi et al., 2007).

1.2 Motivation of the research

The motive for and importance of this research arises from two aspects. Firstly, although much empirical work has been done with respect to the analysis of commercial bank portfolio profits and the measurement of the efficiency of banks in developed countries, the literature on bank portfolio profits in developing countries, and especially that of the Libyan banking context, is sparse. In this context, it is necessary for banks to carry out their projects in order to increase returns and reduce risks to their business, whether their investments are local or abroad. Claessens et al. (2009) stated that structured regulatory systems and safe networks are both present in developed countries. This means that banks in developed countries have more advantages than banks in developing countries. Therefore, this research will add to this area of knowledge, providing the basis for further research. Secondly, an efficient and sound monetary policy by the Central Bank should be based on an accurate understanding of the behaviour of banks, which represent in most cases a major part of the economy.

This will enable new theory development regarding portfolio profitability in developing countries, allowing potential recommendations to be made to commercial banks in Libya. Finally, at present, Libya is implementing a medium-term economic reform strategy. In recent years, the Central Bank of Libya has carried out partial liberalization of the interest rate; this step is a very important move in using indirect monetary management, and in granting autonomy to determine free interest rate on deposits and internal lending rates. In January 2002, the Libyan Diner was pegged to the special drawing rights. The new banking Law introduced in 2005 was designed to liberalise the financial market of Libya and allow foreign banks to enter Libya (IMF, 2006). The Basel II agreements have had an impact on banks' capital adequacy, so that all Libyan banks have had to increase bank capital to comply with the conditions of international bank regulation (CBL, 2007).

After the lifting of UN and US sanctions on Libya in 2002 and 2003, bank credit was increased to public enterprises. All of the changes in the macroeconomic regulatory framework have had an impact on banks` portfolio behaviour, in terms of their composition and profits.

1.3 The importance of the research

The importance of the research is to holistically identify the idiosyncratic factors affecting the portfolio profits of Libyan commercial banks, leading to a new contribution to knowledge. As an implication for practice, this knowledge will add confidence to depositors and foreign investors and other interested parties, and enhance the investment environment for international banks. Thus, the research is to determine the factors affecting the profitability of commercial banks operating in Libya, and to make recommendations to identify and address these factors and develop appropriate solutions, and promote the factors that will sustain profitability and improve performance and achieve success in commercial banks. The research uses an inductive approach to test the literature (Holme and Solvang, 1997; Bryman and Bell, 2005). The research is intended to identify the factors affecting the profitability of Libyan commercial banks through the following steps: (1) Review of previous studies to identify factors affecting the profitability of commercial banks in general. (2) A determination of the theoretical framework, and by drawing on previous studies and integrating them with the logical beliefs of the researcher, to select independent variables which are the factors affecting the profitability of commercial banks. (3) With reference to the theoretical framework, and guided by the factors of the local environment and experience of the researcher, to determine the relationship between the dependent variable (portfolio profits of Libyan commercial banks), and the independent variables (both internal and external factors) reflected in the formulation of objectives, questions and conclusions.

(4) Use data and official statistics issued by commercial banks operating in Libya, the Central bank of Libya and other Libyan government departments, which are the supervisors of data collection, to classify, analyse, and formulate the results and conclusions of the study. (5) Compare conclusions with the findings of previous studies.

1.4 Research aim and objectives

The importance of commercial banks has been discussed and emphasized frequently in the literature. Libyan commercial banks have been chosen for this research because of their importance to the economy. This research takes a scientific realist perspective. Thus, the research deals with how Libyan bank portfolios are affected by several determinants comprising internal and external factors, and how these influence profits. In order to achieve the aim, the specific research objectives are formulated as follows:

1- To identify the impact of the independent explanatory variables that can affect the profitability (dependent variable) of the portfolios of Libyan commercial banks Specifically:

   1-1 To investigate whether individual bank variations in assets and liabilities management in Libyan commercial banks explain variations in profits.

   1-2 To investigate whether bank-specific factors explain variations in bank profits in Libyan commercial banks.

   1-3 To investigate whether individual variations in bank profits are explained by banking industry factors in the Libyan banking sector.

   1-4 To investigate whether idiosyncratic Libyan macroeconomic factors explain variations in bank profits.

2- To identify whether environmental factors (e.g. social factors, restructuring of the banking sector, etc) are perceived to be related to variations in profits.

3- To discern perceptions of the impact of the Central Bank of Libya (and its management of monetary policy) on commercial banks' expansion into new investments (in order to improve their profits).

4- To explore managers' perceptions of the influence of (1) customer services and (2) technology on Libyan commercial banks, especially their impact on deposits and their effect on bank profits.

5- To make recommendations on how to improve the performance of commercial banks in Libya, especially in terms of bank profits.

1.5 Research Questions

The main objectives of this research are twofold. Firstly, it attempts to validate a hypothesized interrelation between bank profits and specific variables related to the Libyan banking system by analysing data collected on Libyan commercial banks, and also by analysing semi-structured interviews. Secondly, it seeks to investigate conditions facilitating profit generation of Libyan commercial banks and contributes to developing a framework to study bank portfolios in Libyan commercial banks. The literature review points to a number of questions relating to profit generation of banks in different countries. Libya, however, was missing in the literature. In this context, the literature is scarce for developing countries, such as Libya. Many studies and research have been conducted to investigate portfolio behaviour and bank efficiency, taking consideration of the monetary policy of Central Banks. However, none of these studies have been conducted within the context of Libya. In order to achieve the aim and objectives of this investigation, the research seeks to answer the following questions, which have been implied by the literature review.

1- Does the Central bank of Libya and its management of monetary policy act as a barrier to commercial banks expanding into new investments in order to improve their portfolios and to maximise their profits? Thus, does it have a direct impact on banks' profits?

2- Do the environmental factors (e.g. social factors, restructuring of the banking sector, etc) of Libyan commercial banks' operations have an impact on bank profits?

3- Has the decline of services and technology in Libyan commercial banks had an impact on deposits and an effect on bank profits, as a result of changes in the relative values of a bank's assets and liabilities, hence, has this led to limiting the capacity and efficiency of the banking system to create deposits and expand credit in order to achieve higher profits?

4- To what extent can independent explanatory variables affect the profitability of the portfolios of Libyan commercial banks, in the light of macroeconomic factors, bank-specific factors, banking industry factors and banking assets and liabilities management?

Chapter two

Overview of the development and reform of the Libyan banking sector

2.1 Overview of the development of the Libyan banking sector

2.1.1 Sources and uses of money of commercial banks

2.1.1.1 Sources of money

All the different types of bank deposits, capital, and reserves form a large source of money that banks use to invest in economic development. This means that the banks' ability to provide credit facilities is connected directly to the size of their deposits, so the more individuals or economic organisations deposit sums of money, the more ability and availability the banks have to finance economic and social activity. According to the information gathered by commercial banks, the amount of money in public commercial banks reached around LD33489.7 billion in 2008. Of this, LD30216.3 billion, or 90.2% took the form of different types of deposits, whilst the rest, estimated at LD 3273.4 million or 9.8%, was in the form of capital and investment (CBL, 2010).

2.1.1.2 Ways of using commercial banks' money

Derived from the fact that public commercial banks in Libya are owned by the community, their main job is to participate in financing plans and schemes for social and economic development. Specifically, commercial banks provide loans and credit facilities to other sectors and contribute to national economic activities. The following Table (2-1) explains the development of the sources and uses of the funds during the period 1997-2008.

It can be seen that the total of equity and capital of Libyan commercial banks from 1997 to 2008 ranged from LD37.2 to LD3273.4 billion, and the total of the demand deposits (liabilities) of the Libyan Commercial Banks from 1997 to 2008 ranged from LD335.5 billion to LD30216.3 billion. In addition, the total portfolio size of Libyan Commercial Banks between 1997 and 2008 ranged from LD503.1 billion to LD34238.2 billion (as explained in Table 2.1 and graph 1).

Table 2.1: The listing of equity and capital, demand deposits and size of portfolios of Libyan commercial banks

Years	Equity and Capital of Libyan CB	Growth rate %	Demand deposits (liabilities) of Libyan CB	Growth rate %	Size of portfolios of Libyan CB	Growth rate %
1997	706.9	11.9%	3976.7	2.3%	7722.6	1.8%
1998	759.6	7.5%	4182.8	5.2%	7861.7	3.8%
1999	673.5	-11.3%	4549.1	8.8%	8158.9	5.8%
2000	770.1	14.3%	4774.3	5.0%	8631.1	1.3%
2001	936.0	21.5%	5132.1	7.5%	8742.8	14.0%
2002	970.7	3.7%	5801.8	13.0%	9970.0	1.7%
2003	999.9	3.0%	6127.8	5.6%	10141.2	20.7%
2004	8292.2	729.3%	7683.6	25.4%	12242.8	19.1%
2005	1630.3	-80.3%	9856.9	28.3%	14584.4	17.1%
2006	1873.6	14.9%	13323.9	35.2%	17079.4	-19.1%
2007	2621.6	39.9%	18329.1	37.6%	13813.1	147.9%
2008	3273.4	24.9%	30216.3	64.9%	34238.2	21.4%

*** Diner Billon, (Resource: Central Bank of Libya, 2010)**

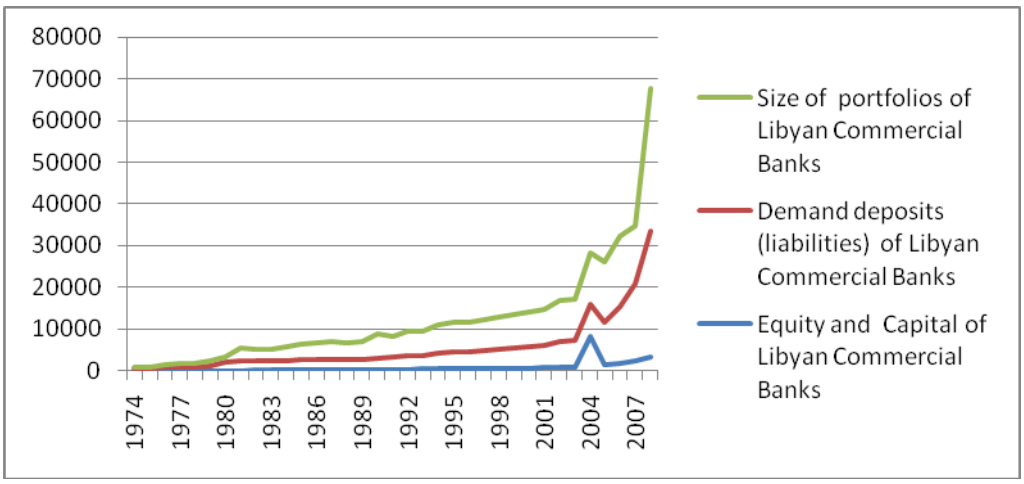
Table 2.2: The listing of total assets and total loans of Libyan commercial banks

Years	Total assets of Libyan Commercial Banks	Growth rate of assets %	Total loans of Libyan Commercial Banks	Growth rate of loans %
1997	9528.5	-1.5%	4165.9	6.4%
1998	9871.9	3.6%	4530.2	8.7%
1999	10123.1	2.5%	5203.6	14.9%
2000	10855.3	7.2%	5584.0	7.3%
2001	11729.7	8.1%	6057.6	8.5%
2002	12489.1	6.5%	6357.8	5.0%
2003	13639.0	9.2%	6775.1	6.6%
2004	15407.5	13.0%	6510.3	-3.9%
2005	18524.9	20.2%	6166.6	-5.3%
2006	23011.7	24.2%	7067.2	14.6%
2007	31176.1	35.5%	8191.3	15.9%
2008	50315.7	61.4%	10544.9	28.7%

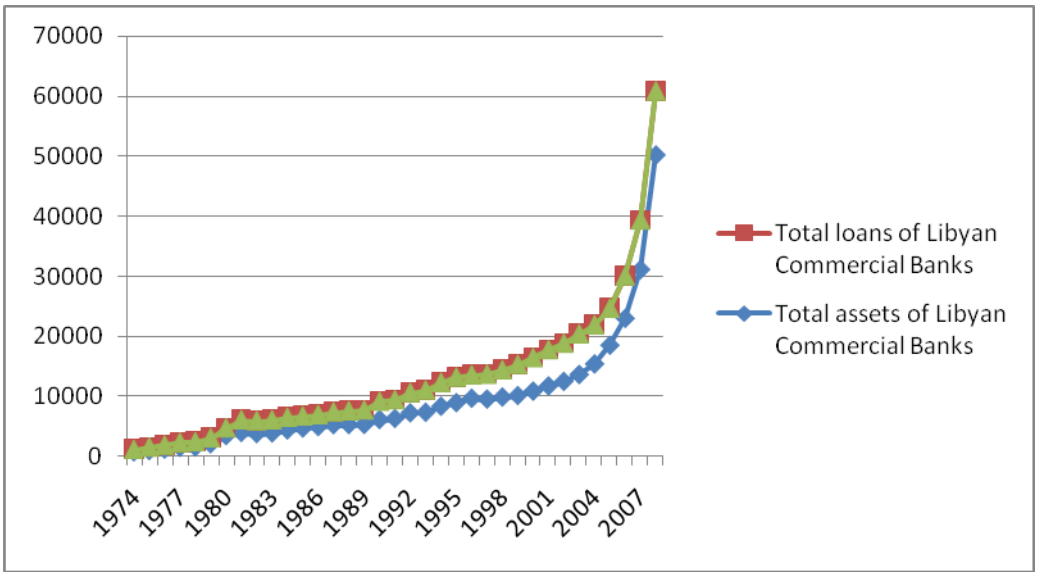
*** Diner Billon, (Resource: Central Bank of Libya, 2010)**

Table (2.2) highlights the development of the banks, finances and the way they were used during 1997-2008. Data shows that the total of these assets of Libyan Commercial Banks from 1997 to 2008 ranged from LD704.7 to LD50315.7, and also the total of the loans of Libyan Commercial Banks from 1997 to 2008 ranged from LD448.6 to LD10544.9 (as shown in Table 2.2, and graph 2).

Graph 2.1: Resources and uses of money of Libyan commercial banks



Graph 2.2: Total assets and total loans of Libyan Commercial Banks and their growth rate



2.1.2 Monetary Policy Management in Libya

Monetary policy in Libya has gone through a number of stages, due to national and international economic changes and circumstances that have affected the local economy. These stages can be divided into four, as follow:

2.1.2.1 First stage: 1956 –1963

The implementation of monetary policy in Libya started when the National Bank of Libya was established. It faced many difficulties during its first years of activity, failing to achieve its aim of being a Central Bank capable of planning and implementing a monetary policy. The most significant difficulties were: (1) The bank lacked sufficient legal power. The law which established it did not give it the power to organise the operations of commercial banks, or even to collect important data to implement a sound monetary policy. (2) The country lacked co-ordination between the governmental, federal and state operations. (3) All commercial banks that worked in the country were branches of foreign banks at the time, which followed the rules and regulations of the parent banks abroad. (4) There was no financial market that the bank was able to have an influence on. Amongst the few monetary policy tools available to the Libyan Central Bank during this difficult period were the discount rate policy and authorities related to supervision of liquidity, as stated in the bank Law of 1958. Of course the bank employed a wide field of policy to explain and persuade in dealing with cases related to monetary policy. In October 1957, the bank faced a monetary problem when there was a noticeable rise in inflation. The bank raised its rediscount rate from 4% to 5%, which was undertaken to limit expansionary money. However, the high liquidity in the economy that resulted in increased spending was due to increased activity in the oil sector. This was also a result of the foreign aid received by the government at the time, which helped to prolong the inflationary trend. Furthermore, this trend was fuelled by foreign banks, as they did not have the need to discount their commercial papers which were kept it in the Libyan Central Bank. This was mainly due to the money which was available on the one hand; while on the other hand, it was also due to the ease of receiving more money from their head offices abroad. In August 1960, the Central Bank attempted for the second time to fight inflation, and raised the discount rate from 5% to 6%.

Commercial banks took this opportunity to raise the interest rates they charged on overdrawn accounts, so that they reached 11% in some cases, after adding commission and expenses. In November 1961, when the Central Bank was faced with a wave of complaints and criticisms from the economic sectors, it was forced to return its discount rate to 5% and requested the commercial banks to reduce their interest rates. As time progressed it was clear to the Bank that its discount rate policy was failing. It was also noticed that the Central Bank could not carry out an open market policy in the absence of a financial market and discount market, and also the law did not allow the Central Bank to implement a capital requirement policy to impact on the size of credit and to create deposits. Thus, it returned to using a policy of persuasion. The Central Bank requested commercial banks not to borrow money from abroad or from their head offices, but to borrow from the Libyan Central Bank whenever they needed liquidity.

2.1.2.2 The Second stage: 1963-1970

The Libyan Bank Laws of 1955 and 1958 did not grant the Bank or any other authorities' legal power to decide on monetary policy tools or to control it. This was not achieved until the passing of Law (4) of 1963 which provided the bank with more power, and enabled it to carry out its monetary policy. The most important results of this Law were: (1) The introduction of a Compulsory Monetary Reserve System for the banks' commercial operations. The Central Bank could decide the percentage of the Compulsory Monetary Reserve, between 10% and 40% of banks' demand deposit, and between 5% to 20% of time and saving deposits. (2) It allowed the Central Bank to diversify its monetary cap in the form of gold bars, exchangeable currency, foreign security bonds and foreign bills, in addition to bonds and bills issued by the Libyan government. (3) It also allowed the Central Bank to define liquidity assets and redefine them as required.

(4) It empowered the Central Bank to draw up a minimum and maximum target for the interest rates of both deposit accounts in commercial banks and advances and loans given by them. (5) The Central Bank could now undertake monetary management and supervision to evaluate the movement of its capital when it was coming in or going out, in order to supervise and control commercial banks and their operations.

As an implementation of article (36) of Bank Law (4) of 1963, in July 1963 the Central Bank of Libya specified 10% as a compulsory monetary reserve on demand deposits, and 5% on time and savings deposits. Article (37) of the same law stated that the Central Bank of Libya had to pay interest that did not exceed the discount rate current in the history of bonds on accounts that had exceeded the known limits. Article (38) imposed a fine on Commercial Banks that had reserves of less than the required limits, requiring them to pay interest on the deficient sum of no more than 0.30% on every day payments were late (CBL, 2009). If the period had passed a month, then the Central Bank of Libya could refuse or restrict a Commercial Bank from granting credit. Amongst the steps taken by the Central Bank to deal with inflation, in July 1966, it increased the ratio of the compulsory monetary reserve on demand deposits from 10% to 15%. It also increased it on time and savings deposits from 5% to 7.5%. In addition to this, it raised the ratio of liquidity from 20% to 25% (CBL, 2009).

Table 2.3: The rate of interest specified by the Central Bank

First	Demand deposits	No Interest Paid
Second	Time deposits	
	Up to ten days	annually3.25%
	Between ten and 90 days	3.50%
	Between 90 and 180 days	3.75%
	Up to 180 days and above	4%
Third	Savings deposits	3.50%
Fourth	Mortgages, Loans and overdrafts	
	Secured loans	7.00%
	Unsecured loans (overdrafts)	7.5%

*** Source the Central Bank of Libya, 2009**

The Libyan Central Bank forced the commercial banks not to provide loans that exceeded 50% of the value of properties.

The Central Bank of Libya maintained its discount rate during this period at 5 %; and specified the maximum rate of interest as explained in Table 2.3.

The purpose of fixing these rates was to protect small and medium borrowers of commercial banks, who were perceived as having being exploited by foreign banks. The Law granted the Central Bank of Libya authorisation to set up direct supervision of credit, based on the type and amount, to support monetary stability and economic growth. It also authorised it to practise open-market transactions as a method of carrying out monetary policy, since the law included the adjustment of the currency cap to include gold and exchangeable currency. It also included a limit of 10% of Libyan bonds as a total of monetary issue. One of the methods of carrying out monetary policy adopted by the Central Bank of Libya was deciding the necessary ratio of monetary caps to open letters of secured credits. No commercial bank has been able to open credit letters related to the import of goods unless secured by a monetary reserve no less than 25% of the import price since 11/6/66 (CBL, 2009).

2.1.2.3: Third Stage: 1970-1993

The first few years of this stage witnessed the reorganization of the banking sector after the start of the Fattah Revolution on the 1st September 1969. Law (153) of 1970 made it possible to nationalise and reorganize foreign shares in commercial banks. Law (63) of 1971 adjusted a few points of Bank Law (4) of 1963. As a result of publishing and implementing these laws and regulations, a complete national banking system emerged. This consisted of five commercial banks complying with the supervision and inspection of the Central Bank of Libya, which became a central bank that possessed the tools of monetary policy and carried out what it considered to be reasonable for the interests of the national economy.

At the beginning of 1970, the Central Bank of Libya reduced the share of liquidity required to be held by commercial banks from 25% (originally set in 1966) to 15%, to allow commercial banks to increase liquidity and their ability to provide credit.

On 21/5/70 there was an adjustment in the components of the liquidity assets in all commercial banks. These included cash in vault, foreign currency, demand and time deposits given by commercial banks to the Central Bank of Libya, and also demand and time deposits given by commercial banks to one another. Although the components included bonds and bills for the Libyan treasury before it turned into regulated debt, these bonds and bills were excluded from the components of liquidity assets as from May 1989, as determined by a law of the Central Bank of Libya's Management Committee. The Central Bank of Libya did not introduce any change to the rediscount rate, which stayed at 5%, as set in February 1961. However, it reconsidered the maximum limit of interest rates credit to become effective at the beginning of April 1980, as explained in Table 2.4. Through the implementation of interest rates on loans, it happened that commercial banks were suffering vast losses, because some of these rates were higher than the rates charged on loans. This reduced the profits of these banks. The Central Bank of Libya amended its decision with regard to interest rates on loans of a medium period (less than one year).

Table 2.4: The listing of the maximum limit of interest rates credit

First	Demand deposits	No Interest Paid	
Second	Time deposits		Annually
	Up to ten days	4.5%	
	Between ten and 30 days	4.75%	
	Between one and three months	5.00%	
	Between three and six months	5.25%	
	From six months to one year	5.50%	
	Up to one year	6.00%	
	Up to two years	7.00%	
	Up to three years	8.00%	
	Up to four years and above	9.00%	

*** Sources Central Bank of Libya, 2009**

The maximum interest that a commercial bank could change for this type of loan became 5.5%, with the option of staying on the loans' interest rate ladder.

The same was done for individual deposits to encourage them to bank with commercial banks and also to compensate them for the lack of investment opportunities.

Concerning the interest rates of loans, the general limits of the ratio of interest remained at 7% on secured loans and 7.5% on unsecured loans. The ratio of interest was reduced in some following cases as a precautionary method to comply with general social and economical policies: (1) Interest on house mortgages was reduced to 4% per annum.

A decision was then made to exempt mortgage loans, given for the purpose of buying or building a private house, from paying any type of interest due to law (57) made by the Treasury Secretary on 21st April 1976. The law stated that the exemption was to be in force from the beginning of January 1976.

It is worth pointing out that a service fee of 10% was introduced on house mortgages of those on medium incomes that were added after 1986. However, this was reduced to 5% in 1990. (2) An annual charge was imposed on land mortgages given for the purpose of house development in 1973 until the end of 1975, when work in this field came to a standstill. (3) To encourage specific economic sectors, the interest rate on loans for industrial and agricultural production was reduced to 6%. In addition, interest rates were set at 5% on business mortgages granted to redundant workers from the public sector, so they would move towards productivity. This came as an implementation of law (247) made by the General People's Committee in 1991 as an encouragement to those who were made redundant from the productive sectors during the first years of this period; the Central Bank of Libya developed what became known as a re-financing policy.

This aimed to increase the involvement of commercial banks in financing economic and social development, and to prepare the Bank to offer finance in return for the accounts of credit facilities granted by commercial banks to local contractors. These contractors who established community projects could claim loans at a discounted rate of 5%. This in turn increased facilities in the form of a return on finance to those banks.

As regards overdrafts, the Central Bank of Libya supplied commercial banks with money up to a limit of 10% of accounts used for loans and advances given by commercial banks to national contracting firms, with a usual discount rate of 4% or less. These steps also included foreign companies that were exempt from the condition to provide commercial prepayments (monetary guarantees) on their permitted guarantee letters. The Central Bank of Libya also allowed commercial banks to provide these companies with credit facilities in return for the foreign companies abandoning their required payments from the Fiscal Ministry, or providing loan guarantees from large foreign banks. With regard to setting the percentage rate which should be considered between the value of advances and the guarantee of advances, the Central Bank of Libya gave orders to commercial banks in the form of a leaflet, number (250) of 1982, which requested an increase in this rate from 50% (set in 1966) to 80%. This allowed banks to expand the size of credit facilities and generate a surplus of available liquidity. The aim of this refinancing policy was to increase the involvement of the banking sector in financing economic and social development projects in the country.

2.1.2.4: The Fourth Stage: 1993- 2005

This stage witnessed some noticeable changes at both national and international levels. Nationally there was an emergence of economic reform policies aimed at reforming the national economic structure and forming a more liberal economy. A number of rules and regulations were made to allow individuals, companies and business groups to participate in trade and services. In addition, Law (1) of 1993 concerning banking, monetary policy and credit was introduced to encourage both domestic and foreign banks to open new branches in Libya. A new expansionary monetary policy was adopted allowing banks to provide credit facilities to the craft trade and manufacturing activity through reducing the interest rates on industrial and agricultural loans to 6.0% (CBL, 2009).

According to the new policy an investment fund called “moving towards production” was set up to increase both a surplus of excessive liquidity and money supply. The Central Bank of Libya reduced interest rates on transitory accounts that were held by the commercial banks from 4.0% to 2.5% (CBL, 2009). This was designed to encourage the search for alternative investment opportunities in the national economy. The Central Bank of Libya also re-examined the maximum interest rates on loans that were used in the last stage, and these ceased to be effective as from 24/11/94. This is explained in Table 2.5.

Table 2.5: The interest rates on loans re-examined the maximum by the Central Bank of Libya

First	Interest on loans of commercial banks		
1	Demand deposits	No interest rates	
2	Time deposits		
	Less than ten days	2.5%	
	Between 11 and 30 days	3.0%	
	Between 31 and 89 days	3.5%	
	Between 90 and 180 days	4.0%	
	Between 181 and 360 days	5.0%	
	More than one year	5.5%	
3	Savings accounts for normal individuals		
	Up to 20 thousand dinars	6.0%	
	From 20 up to 100 thousand dinars	5.0%	
	More than 100 thousand dinars	No interest	
Second	Interest on accounts owned by commercial banks		
1	Loans and mortgages for social and economical purposes:		
	Secured mortgages and credit	7.0%	
	Overdrafts	7.5%	Annually
2	Loans for agriculture, industry and craftsmanship	6.0%	
3	Loans for allowing workers to move to industry	5.0%	
4	Property loans for citizens on medium income	2.0%	

*** Sources the Central Bank of Libya, 2009**

The end of the 1990s witnessed a dramatic change in all economic sectors, especially the monetary and banking sectors. This was due to economic and monetary policies which adopted new means to deal with the many difficulties and obstacles that were faced by the national economy as a result of unpredicted circumstances on both international and national levels.

The new policies aimed to restructure the national economy, especially the banking sector, through laws and legislation that included many rulings and cases to widen the ownership band and foster a productive base. In addition, the CBL sought to maintain the stability of basic rate levels and process the movement of economic development.

One of the most important laws made during this period was Law (1) of 2005 regarding banks, which aimed to establish independence for the Central Bank of Libya and activate the role of inspection on all working banks in the national economy at all different levels. There has been an increase in the capital of commercial banks to LD500 million to allow them to invest directly in other fields such as property development. Also a minimum capital requirement has been set for the commercial foreign banks, which can retain their activity in Libya as long as they have capital of less than US$50 million. In addition, foreign banks are allowed to invest in local banks according to established rules and regulations.

Table 2.6: The reducing interest rates on loans provided by commercial banks

Article		17.2.2004	24.3.2004	11.9.2005
First	Interest on loan accounts by commercial banks			
1	Demand deposits	No interest	No interest	
2	Time deposits			
	Up to 10 days	1.5%	1.5%	
	Between 11 and 30 days	2.0%	2.0%	
	Between 31 and 89 days	2.5%	2.5%	
	Between 90 and 180 days	3.0%	3.0%	
	Between 181 and 360 days	4.0%	4.0%	
	More than one year	4.5%	4.5%	
3	Savings accounts for normal civilians			
	Up to 20 thousand dinars	5.0%	5.0%	
	From 20 to 100 thousand dinars	4.0%	4.0%	No set limits
	More than 100 thousand dinars	No interest	No interest	
second	Interest on loan accounts given to commercial banks			
	Trading loans	6.0%	6.0%	
	Social loans	6.5%	6.5%	
	Loans for agriculture, industry and craftsmanship	5.0%	3.0%	
	Loans given for workers to move into production	5.0%	3.0%	
	Property mortgages given to citizens on medium incomes	2.0%	3.0%	6.5%

*** Sources the Central Bank of Libya, 2009**

The Central Bank of Libya has taken steps to implement many changes, including reducing interest rates on loans provided by commercial banks, especially on manufacturing loans, to 3% (CBL, 2009). It consolidated this interest on all types of loans and credit facilities equivalent to its rediscount rate, adding a percentage of no more than 2.5% (CBL, 2009). Interest rates were set on commercial bank deposits at the Central Bank of Libya so they would be at the same level of 2.5%. The Central Bank of Libya then reduced this rate to 1.75% to encourage commercial banks to look for alternative investments. Table 2.6 illustrates the changes in the maximum interest rate for loans from commercial banks since 17/12/2004:

2.2 Reform of Libyan Monetary policy

In 1990 the Libyan Central Bank adopted regulations according to international standards and practices, such as Basel I and II. Furthermore, the Libyan Central Bank has started to implement a tighter and more efficient supervision according to the new bank Law of 2005. In 2005 the mandatory cash reserve ratio unified the deposit liabilities of commercial banks kept at the Central Bank of Libya, which also raised the mandatory cash reserve ratio from 15% to 20% of the deposit liabilities of commercial banks (CBL, 2009). The Central Bank of Libya set the statutory liquidity ratio which Libyan commercial banks should keep at a minimum of 25% of total deposit liabilities. The Central Bank of Libya unified the price of interest rate on all loans and facilities granted by commercial banks, and set the discount rate at the Central Bank of Libya at no more than 2.5%. Regarding liberalisation of interest rates on loans, interest rates on deposits were liberalised by the Central Bank. The Central Bank was not only allowed the commercial banks to determine interest rates and to discuss these rates with their customers, but also to discuss the banking commissions which are charged for their services, opening the door to a competitive banking market.

In addition, in 2005 the Central Bank allowed commercial banks to increase their ceiling of credit. This encouraged the commercial banks to seek other investment and finance areas to help achieve the desired economic growth. Thus, it reduced the interest rate on deposits which were received by the commercial banks from 2.5% to 1.75%. This was in order to develop monetary policy through the use of indirect instruments of this policy, with the purpose of managing liquidity in the economy and controlling the money supply in order to maintain the stability of the level of prices. Table 2.7 provides a list of foreign banks operating in Libya after the issue of bank Law (1) of 1993.

Table 2.7: The listing of foreign banks operating in Libya

No.	Name Of The Bank	Date of accept	Date of open
1	Arab Banking Corporation	16/08/1988	16/08/1988
2	Arab Bank for Investment and Foreign Trade	25/04/1994	25/04/1994
3	The Housing Bank – Jordan	30/06/1997	01/ 10/1998
4	British Arab Commercial Bank	18/04/1998	01/09/1998
5	Arab Jordan Investment Bank	18/06/1998	15/8/1998
6	UBAE Arab Italian Bank	26/08/1999	13/06/2000
7	Bank of Valletta	28/12/1999	30/10/2002
8	SUEZ Canal Bank	27/08/2000	24/01/2002
9	BAWAG Bank – Austrian	31/10/2004	19/04/2007
10	CALYON Bank –French	20/02/2005	21/07/2005
11	Tunis International Bank	22/12/2005	20/04/2006
12	Piraeus Bnak – Egypt	22/10/2005	01/06/2006
13	Qater National bank	12/12/2005	15/02/2006
14	Banque International Arabe De Tunisi	06/07/2006	Not yet
15	HSBC Bank	14/09/2006	10/06/2007
16	Societe General	14/09/2006	12/09/2007
17	BNP PARIBAS – French	14/03/2007	20/09/2007
18	Fransa Bank – Lebanon	30/04/2007	01/01/2008
19	Attijari Wafa Bank – Morroco	17/06/2007	30/05/2008
20	National Bank of Abu Dabi	11/05/2008	Not yet
21	Beirut Bank	27/05/2008	Not yet
22	Commerz Bank – Germany	13/08/2008	Not yet

*** Source Central Bank of Libya, 2009**

2.3 The distribution of the branches and agencies of banks

In December 2009, the number of branches and agencies of banks operating in Libya was about 455, and graph 2.3 shows the distribution of bank assets by region in Libya. It can be seen that the Al Jomhria Bank has the largest number of branches, followed by the Alwahda Bank. Table 2.8 shows the distribution of bank branches and agencies: (A= Agency B = Branch).

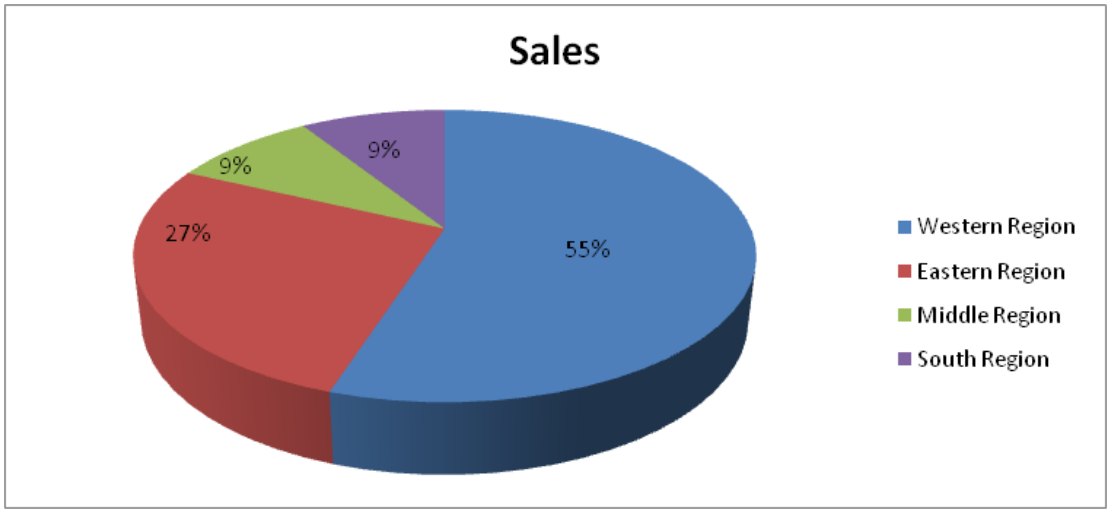
It can be seen that the largest concentration of branches and agencies is in the western region (55%), followed by the eastern region with 27%, and the south and the middle region with 9%.

Table 2.8: The listing of the distribution of branches and agencies of Libyan commercial banks

Banks	Western		Eastern		South		Middle		Total		
	B	A	B	A	B	A	B	A	B	A	Total
Al. Jomhria Bank	61	26	22	8	17	1	16	2	116	37	153
Al.Wahda Bank	35	1	33	0	5	0	1	0	74	1	75
National Bank	25	0	15	0	7	0	5	0	52	0	52
Sahara Bank	18	6	14	2	4	0	4	0	40	8	48
Commerce Bank	20	3	8	0	6	3	4	2	38	8	46
Banking corporation	5	8	11	3	0	0	1	0	17	11	28
Al Waha bank	1	14	0	4	0	0	0	4	1	22	23
Aman commerce Bank	4	6	0	0	0	0	0	0	4	6	10
Elajmah Alarby Bank	2	2	1	3	0	0	0	0	3	5	8
First Libyan Gulf	2	1	0	0	0	0	0	0	2	1	3
Alwafa Bank	1	1	0	0	0	0	0	0	1	1	2
Al. medal Bank	2	0	0	0	0	0	0	0	2	0	2
El matahad Bank	1	1	0	0	0	0	0	0	1	1	2
Sraya Bank	0	1	0	0	0	0	0	0	0	1	1
Commerce Arabic	1	0	0	0	0	0	0	0	1	0	1
Shof Engeal Bank	1	0	0	0	0	0	0	0	1	0	1
Total	179	70	104	20	39	4	31	8	351	102	455

(Sources the Central Bank of Libya, 2009)

Graph 2.3: Distribution of the assets of branches and agencies of banks



2.4 Summary

The main objective of this chapter is to give an overview of the development of the Libyan banking sector and of bank reforms, and also to contribute to establishing the background of Libyan monetary policy and its effect on commercial banks which operate in Libya. This will allow the researcher to understand the effects of the nature and characteristics of the banking system (including the policies of Central Bank of Libya) in terms of bank profits. In addition, this chapter will help the researcher to explain the relationships between independent variables (which will be introduced in chapter five) and their effect on the dependent variable. So, this chapter will be important in terms of understanding how the Libyan Central Bank manages its monetary policy and the orientation of Libyan commercial banks.

Chapter three

Factors influencing the profitability of commercial banks (assets and liabilities management, bank-specific and industry- specific determinants)

Factors influencing the profitability of commercial banks

3.1 Introduction

There are several internal and external determinants which have an impact on financial institutions in terms of operation and performance. This impact affects the composition and profitability of their portfolios. On the one hand, the internal determinants are variables that are related to the management of a bank. These variables are derived from bank accounts which represent such factors as profit and loss accounts and/or balance sheets; they are called "bank-specific determinants". On the other hand, there are also external determinants, which the management of a bank does not control. These variables reflect the macro environment, having a considerable influence on financial institutions. They can also be divided into two parts: the first part comprises determinants which are related to the banking industry, called "industry-specific determinants". Most studies in this field use such factors as ownership and concentration. The second determinants are called "macro-economic-specific determinants". These deal with the intention to control macro-economic variables. The variables which are usually used to understand the impact of macroeconomic-specific determinants on banks include such factors as the inflation rate, rate of economic activity and cyclical output. These aspects will be discussed more fully in chapters three and four.

3.2 Influence of assets and liabilities management and profitability

A significant requirement for the profitability and stability of a bank is to structure and manage its liabilities and assets. Consequently, the question for the management of every bank is how best to utilise the structure of liabilities and assets for maximum profit. Factored into this optimisation are the bank's specific business policy and their risk evaluation, limited by the liability limit that the policy-makers set or that its reserves comfortably allow.

The efficient management of bank funds and sources is dealt with by liability and assets management, prompted by the aims of capital adequacy, profitability, liquidity and risk factors, in an environment which is competitive and dynamic. The business of banking, as with other industries, has become increasingly sophisticated, owing to multiple developments in technology, the expansion of the economy and diversification in management styles, and increased competition, as well as co-operation between the financial institutions in question. Particularly in an unstable economy, the quality of assets and liabilities affects the success of a bank (Cemal and Sibel, 1997). This is because banks are the most important component of the financial service sector in an economy, and therefore critical to the survival of an economy (Juleff and Paton, 2007). Banks are institutions of financial intermediation, thus they play a helpful role in the development of a country and its macroeconomic performance. Ross (1996) demonstrates that the efficacy of banks might impact macroeconomic performance and its growth. This is accomplished partly by the positive influence of banks in terms of their effect on funds that are saved or invested (Demnirgii and Harry, 1998).

Fama, (1980) reported that a modern economy is affected by the profitability of its banks, because banks receive deposits from their depositors and then invest these deposits, thus banks create money and opportunity for investment in a country. This is principally relevant to commercial banking, where institutions are obliged to spend money on their expenses from their liabilities; on the other hand they gain returns from their assets.

Consequently, bank profits are the result of effective and efficient management of assets and liabilities. Other influences which contribute are usually attributable to market and macroeconomic factors (Short, 1979; Molyneux and Thornton, 1992; Athanasoglou et al., 2008). With profit in mind, maintaining the optimal balance between the lowest possible risk and the highest possible return is an essential principal which needs to inform the planning processes of institutions.

The business environment of today, which is driven by growth, is extremely competitive and constantly demands higher return from fewer investments. One of the consequences of using this lever of low risk and high return is that, during the good times, bank regulation and review systems are then often demoted, which results in declining returns on assets and capital ratios (Martin et al., 1999). Observable differences in management affecting profit maximisation are a result of differences in bank objectives, policies, and different bank operating relationships. The operating relationships which a bank enters into reflect (1) its overall profitability and gross revenue; (2) funds-use measures (asset-management measures, including "returns" on the uses); (3) funds-source measures (deposit and capital measures, including "costs" of the sources); and (4) expense measures (Haslem, 1998).

Vasiliou (1996, p. 72) states that disparities in bank profits are caused by at least one of the four following categories"(1) net rate of return on assets, (2) net rate of cost on liabilities, (3) composition of asset portfolio, and (4) sources of liability funding". A major element in the composition of assets is the bank's loan portfolio. Management of the loans portfolio is the most important function in the operation of a commercial bank, because it generates the bank's primary source of revenue. The right composition of loan portfolio and "loan pricing", which should be determined by the portfolio, is therefore crucial to sound portfolio management. Owing to the innate risks in lending and the necessary limitations of the statutory system on lending authorities, the competition is sharpened for each institution to effectively manage the loan portfolio (Martin et al., 1999). Similarly, sound deposit management to reduce interest costs on deposits while attracting sufficient funds to the banking system is ideal in commercial bank management (Weeraselcera, 1996). Sufian et al., (2009) studied the profitability of Bangladeshi banks between 1997-2004, to examine the relationship between bank specific characteristics and bank profitability, and their result concluded that profitability was impacted significantly positively by cost.

Moreover, in an adverse market environment with intensified competition, banks are exposed to increasing risks and decreasing return margins of their credit portfolio, while bank shareholders demand higher risk premiums for their invested capital. In addition, with the increase in competition between banks which is created by the entrance of foreign banks, several authors such as Claessens et al., (2001) and Bayraktar et al., (2006) have found that this increases economic growth. On the other hand, Ben Naceur and Omran (2008) reported that competition between banks could reduce interest margins, thus reducing bank profits, Sufian and Habibullah (2009) studied the performance of the Chinese banking sector, during the period 2000 to 2005. They stated that banks which increase their number of new products and services remain competitive with other banks and increase their efficiency and profitability. Therefore, the ability to identify optimal risk-return portfolios also becomes a fundamental function of credit portfolio management (Ursula et al., 2003). Kwast and Rose (1982) stated that differences in the portfolios of banks can somewhat explain variations in bank profits. Additionally, return rates differ enormously between the items on balance sheets. In this context, Sayilgan and Yildirim (2009) studied bank profitability in Turkey over the period 2002-2007. Their results indicated that the ratio of off-balance sheet transactions to total assets affected profitability indicators negatively in a statistically significant manner. They also found that the ratio of equity to total assets affect profitability indicators in a significantly positive way.

3.2.1 Liquidity management and profitability

Pilbeam (2005) explains that banks tend to maintain low liquidity levels because liquid assets earn less interest than loans, which are more illiquid. The result is that the asset which is most immediate to customer's cash is often in short supply. Howells and Bain (2007) stated that in December 2005 only 0.17% of the assets held by banks in the United Kingdom were possessed in the form of notes and coins.

However, the management of finance needs to be well-planned and implemented so that consumers are able to access their savings when required. Buckle and Thompson (2004) explain that there are two types of liquidity management techniques to which a financial institution can subscribe in order to reduce risk: reserve asset management and liability management.

Casu, Girardone and Molyneux (2006, p. 486) define liability management as "the process whereby banks manage liabilities and buy in (i.e. borrow) funds when needed from the markets for interbank deposits, large-sized time deposits and certificates of deposit". They explain that holding a liquid asset reassures creditors, signals that the bank is prudent and that lending commitments can be met. It engenders security. It avoids the bank's assets being sold, or paying the highest rates for borrowing on the inter-bank markets, or borrowing from the central bank.

3.2.2 Management quality and profitability

It has been shown that increased institutional stability raises profits and that an increase in market share will result from better management (Athanasoglou et al., 2005; Berger, 1995a). Montinola and Moreno (2001) state that low marginal monitoring and the quality of management leads to "free riding" on good workers and reduced productivity and economic efficiency. This lack of effort and skills can spread within the organisation, so that over time the average effort of the organisation will plummet to the level of the least productive workers in terms of effort. From time to time, the employee pool will be expanded with better, more enthusiastic workers, but the averaging effect will continue, and the level of effort will consequently fall to its pre-existing level. Recruitment causes workers to employ work avoidance techniques shows in the change in the organisation’s profile, so eventually efficiency falls over time, and the profits of a firm will be affected negatively.

In the same way, in cases where the quality of management is low and the board of directors has vested credit interests and cannot provide honest and effective leadership, the bank cannot offer prudent lending practices.

This again tends to have the final effect of expanding the frequency of substandard credits in the credit portfolio of banks, and in this way reducing the profitability of the banks (Mamman and Oluyemi, 1994). However, Gambs (1977) emphasises that poor management may not actually be the death knoll for a bank, and an organisation is not dependent on one factor alone unless unfavourable economic conditions also have an adverse effect on the bank, and these effects lead to capital outflows or loan losses which were unexpected. Several studies have been conducted to investigate how management quality affects bank profits. So it is considered one of the determinants of bank profits. Claessens et al., (1997) suggested that an improvement in corporate governance is reflected in higher levels of market value and profitability. This improvement can be facilitated by investing managers with greather autonomy and implementing modern international accounting standards. Mamman and Oluyemi (1994) suggested that a decrease in a bank's profitability and an increase in the ratio of unsatisfactory credits in the bank's credit portfolio are both influenced by the quality of bank management. Most previous studies have found a positive relationship between the best quality of management and bank profits, such as Molyeneux and Thornton (1992) and Bourk (1989). Also Koehn and Santomero (1980) suggested that profitability of bank can be increased by improving the quality of their management.

This is also supported by Molyneux and Thornton (1992) who found that the relationship between profitability and management quality is positive. Consequently, the bank profit is affected by the expenses of the bank, and it is closely related to the management efficiency notion. Finally, this section will look at several key studies on the relationship between management quality and profitability.

Management quality as defined by Mamman and Oluyemi (1994) is “low and the board of directors does not provide honest and effective leadership, they are often more concerned with securing credit facilities for themselves, and prudent lending practices cannot be followed. This has the net effect of increasing the ratio of substandard credits in the bank’s credit portfolio and decreasing the bank's profitability”. Montinola and Moreno (2001) studied Philippine banks and argue that in their study sample, managerial monitoring is imperfect and management quality is low; and their results show that political changes and a reduction in the banking efficiency of domestic banks has attracted foreign banks to enter their market. Athanasoglou et al., (2005) researched Greek banks and found that the bank- level management has an impact on bank profitability, and also that bank-specific factors shape bank profitability. However, the managerial decisions of the bank are unaffected directly by macroeconomic control variables.

3.2.3 Empirical studies on assets and liabilities management

Portfolio management is an ongoing activity process that must include continuous business analysis processes, centred on how results are attained, whether such results are dependent upon certain conditions and will continue, and how the organisation can exploit its opportunities to the full and provide the greatest benefit to shareholders. There are many studies in this area which have studied how bank profits are affected by the combination of its assets and liabilities. e.g. Hester and Zoellner (1966); Kwast and Rose (1982); Vasiliou (1996); Kosmidou et al., (2004); Asiri, (2007); and Sayeed and Hoque, (2008). Hester and Zoellner (1966, p. 373) consider the Statistical Cost Accounting (SCA) to be a method of regression via which "rates of return are imputed to earning assets and deposit liabilities".

In addition, they employed the SCA method on US banks to provide empirical estimates of the net return rates which banks realise on various elements of their portfolios, and their result indicated that the coefficients of the majority of elements of assets and liabilities were found to be significant. Thus the hypothesis which stated that there was a relationship between the elements of the balance sheet was refused.

The traditional SCA model, was employed by Hester and others, and considered commercial banking assuming that they are competitive, and attempted to maximise their expected profits (Kwast and Rose, 1982). In order to examine the relationship between the operating performance of a bank (in terms of pricing and operating efficiency) and its profitability, Kwast and Rose used the techniques of SCA model. In 1996, Vasiliou used the SCA methodology to examine differences in profit level between highly profitable and unprofitable Greek banks. His result indicated that the management of assets, and at a lower level that of liabilities formed a significant part of the differences between the profitability of banks in Greece.

Kosmidouy et al. (2004) employed the same SCA method to study the relationship between returns and the composition of asset-liability, developing on previous studies. They also divided their sample into groups; high bank profit and low bank profit; this was achieved by comparing their operating profit with the industry average. Their results indicated that highly profitable banks experience significantly lower liability costs for most sources of funding; this allows banks to cover any losses caused by a lower asset return rates, unlike their lower profit competitors. Asiri's (2007) results, using the same method, indicate that usually assets, especially in the form of loans, positively contribute to revenue, but that liabilities, mostly in the form of deposits, negatively contribute to revenue. The importance of individual assets differs. Loans are very important, followed in order of importance by deposits and investments, while other assets and also fixed assets, proved to be inversely related to revenue.

Sayeed and Hoque (2008) examined extent to which the management of assets and liabilities, in combination with certain external variables such as the depth of market concentration and rate of inflation, affected the ability of a selection of commercial banks in Bangladesh to be profitable. A modified SCA model was applied in this study, designed to test whether asset and liability management of private sector banks is better than public sector banks. They found that private banks are better than public banks in terms of asset management, but they do not have any superiority over public banks in terms of liability management.

3.3 Bank-specific determinants and the profitability of bank portfolios

Recent studies have followed a dynamic estimation approach (panel data models). The effect of bank-specific, industry-specific and macroeconomic determinants of bank profitability are examined by Athanasoglou et al. (2005) to cover the period between 1985 – 2001 in a panel of Greek banks. They found that profitability, as expected, is not influenced by all bank-specific determinants, with the exception of the size of the bank, and this influence exists to a moderate extent. On the other hand, Athanasoglou et al. (2006) studied profitability determinants of South Eastern European banks during the period 1998 to 2002. Their results indicated that all bank-specific determinants significantly affect bank profitability, except liquidity. The study by Necer (2003) stated that individual characteristics of a bank largely affect the bank's interest and profitability margins. The determinants of the performance of Islamic banks were studied by Bashir (2000) over the period 1993-1998 in eight middle-eastern countries. The result of this study indicated that higher profitability is affected by large loan- to-asset ratios, and leverage. Also in this context, Flamini et al. (2009) stated that bank-specific factors are important to explain high bank profits.

3.3.1 Bank size and profitability

Bank size is one of the determinants of bank profits. The relationship between bank size and bank profits has been investigated by many previous studies.

By using data across six European countries to study the performance of banks, a study by Goddard et al., (2004) indicated that the relationship between profitability and size is relatively weak. However, the relationship between profitability and off-balance-sheet business is significantly positive in British banks. Bourke (1989) argued that there is a negative relationship between profitability and operating expenses ratio, and in order to increase profitability; expenses should be decreased and efficiency improved. It may be that the effect of a growing bank size on profitability is positive, as suggested by Eichengreen and Gibson (2001), but it is also reported that this effect operates up to a certain limit. This idea is supported by Smirlock (1985), who stated that bank profitability is affected by the growing size of a bank, and there is a significantly positive relationship. Increasing the size of a banking firm contributes to cost savings (Berger et al., 1987). On the other hand, Athanasoglou et al. (2008), in his study explaining Greek banking profitability, reported that the size of a bank is not an important factor to when measuring profitability.

Eichengreen and Gibson (2001) believed that a growing bank size may also have a negative effect, as a result of bureaucratic restrictions. Athanasoglou et al. (2005) stated that due to bureaucratic reasons, large banks could face inefficiencies. Athonasoglu et al. (2005) suggested that the size of a bank has a large impact on the expected profits of the bank. The increase of exposure to credit risks will decrease both profits and capital, which are important in explaining the profitability of a bank.

3.3.2 Bank capital and profitability

Sound banking management is a prerequisite for achieving the profitability and stability of a bank.

Molyneux (1993) stated that there is a positive relationship between equity and profitability. As a result, lending and capital cost are both affected by increased levels of equity. Also, a study by Goddard et al. (2004) observed a positive relationship between capital and bank profitability. This is supported by Ben Naceur and Goaied (2008), who reported that large profitability can be associated with banks which have high amounts of capital; this result was found through a study of the Tunisian banking sector during the period between 1980 and 2000. On the other hand, Aburime (2006) concluded that capital size, ownership concentration and size of credit-portfolio are insignificant. Bank capital is one of the determinants of bank profits, and the relationship between bank capital and bank profits has been investigated by many previous studies. Capital requirements and their influence on bank portfolios merit particular attention (Haubrich and Wachtel, 1993). Barth et al., (2004a) found that stringent capital requirements reduce the amount of non-performing loans held by a bank. In contrast, bank performance, banking sector stability and development are not affected by capital stringency. Athanasoglou et al. (2008) studied Greek banks over the period 1985 to 2001, to examine the effect of bank-specific, industry-specific and macroeconomic determinants of bank profitability. Their results indicated that banks that banks with significant capital resource could invest in potentially lucrative projects more easily, and had the scope to deal effectively with unpredictable losses, enabling them to terms of the relationship between profit and capital. Banks usually calculate an ideal ratio between their capital resource and their liabilities, taking account of their deposit insurance allocations (Buser, Chen and Kane, 1981). Berger (1995), in his study of bank profitability and capitalisation in US banks, provides empirical evidence here is a positive relationship between these two elements. This is also supported by Demirgüç-Kunt and Huizinga (1999). They found the relationship between profitability and capitalisation to be positive.

Naceur (2003) agrees that banks with significant capital resources have less need for external funding and face reduced bankruptcy and funding costs; and that as a result they are likely to be more profitable.

Most previous authors have found a positive relationship between bank capital and profits, such as Keeley and Furlong (1990), Berger (1994), Berger (1995b), Demirgüç-Kunt and Huizinga (1999) Naceur (2003), and Kwan and Eisenbeis (2005). However, Demirgüç-Kunt and Huizinge (1999) argue that the relationship between profitability and reserves is a negative one. They also suggest that bank profits in developing countries are depressed by official reserves more than in industrialised countries. Molyneux and Seth (1998) found that a bank's performance is affected by the ratio of risk adjusted to capital, as illustrated by a study of foreign banks in the United States over the period 1987-1991. Several studies have examined the relationship between bank capital and bank profits in US banking.

Furlong (1992) studied the relationship between the capital of banks and bank lending by comparing capital between banks in the US. Furlong found that bank loan growth rates are positively related to capital-to- assets ratios, and an increase in capital standards. On the other hand, he also found that constrictions on lending during capital organisation were largely responsible for credit crises. Peek and Rosengren (1995) also found that a reduction in bank lending causes a rise in the demand for loans, and a capital crisis is brought about by a reduction in money supply. Peryar (1995) studied the relationship between capital and profits in the Bank of America. He suggests that equity return and the ratio of assets to capital have a positive relationship, as do profits and capital. Brinkmann and Horvitz (1995) found that there is a relationship between the loans supply and capital requirements (Basel Committee) via a study of the Basel agreement (1988) on the standard risk basis capital. Also there are two studies in Britain and Egypt respectively.

In 2004, Goddard studied the cost of intermediation, bank capital and bank profits in the British banking sector; and indicated that there is a positive relationship between the ratio of assets to capital, and the availability of exceptional profits from one year to another. The result was positive in Britain as to the profitability of business off- balance sheet in the bank's portfolio. Naceur and Kandil (2006) studied the cost of intermediation and bank profitability in the Egyptian banking sector, using return on assets or equity as a measure. They concluded that higher capital requirements and the reduction in implicit cost in the post- regulation period positively increased bank profitability. On the other hand, banks face some constraints, in terms of their ability to expand credit and contribute to economic growth. As a consequence, excessive regulation leads to higher costs of intermediation and decreased profitability for banks.

3.3.3 Impact of size of deposit liabilities and labour productivity on profitability

In general, many studies find that the size of deposit liabilities and labour productivity has a strong bearing on bank performance. The results of the study by Naceur and Goaied (2001) into Tunisian banking over the period 1980-1995, investigating determinants of Tunisian deposit banks' performance, indicated that it has a positive relationship to labour and capital productivity in two cases. First, banks maintained a high level of deposit accounts relative to their assets by increasing the total deposits to total assets ratio. This allows banks to invest in different profitable investments such as lending. Secondly, the capital structures of banks were reinforced. Also Aburime (2006) studied bank profitability in Nigeria over the period 2000-2004. The conclusions reported included that the size of deposit liabilities was insignificant. In the same vein, the results of the study on labour productivity by Athanasoglou et al., (2005) document that bank profitability is affected by growth in labour productivity. This effect is positive and significant. The income of a bank is created by higher productivity growth, but bank profits are part of it.

3.3.4 Risk level and profitability

Many studies have been conducted to understand how far commercial banks are willing to bear risks to achieve greater profitability. The profits and safety of banks are both affected by their risk-taking, as suggested by several authors such as Athanasoglou et al. (2005) or Koehn and Santomero (1980). Athanasoglou et al. (2005) studied determinants of Greek banks over the period 1985- 2001. They found that profits are influenced by restricted credit risk, and that profitability can be explained by capital. Bobáková (2003) stated that in the management of banks, the main target for any bank is to maximise their profits through several actions. First, the bank's specific business policy is to maximise the assets and structure of liabilities. Secondly, it is to determine its profit. Thirdly, there should be an evaluation of the risk level which the bank is willing to bear. Banks, in order to find a balance between assets and liabilities and to make themselves more profitable, need to eliminate risks which could be associated with asset operations (Bobáková, 2003). The management of the structure of bank assets and liabilities is an important factor for bank profitability and stability, thus the main aim of banks is to maximize them (Bobáková 2003). Koehn and Santomero (1980) stated that there is no explicit relationship between the amounts of capital held and bank failure, which has been confirmed by other authors. According to Bobáková (2003), interest rate policy in commercial banks has an impact on their profitability. Also the required rate of profitability in commercial banks is affected by interest rates.

Calem and Rob (1999) state that risk-taking behaviour is affected by capital requirements and has a positive relationship with capital requirements On the other hand, Fernandez and Gonzalez (2005) stated that risk-taking behaviour is only undertaken in specific circumstances.

3.3.5 Credit risk and profitability

Credit risk is one of the determinants of bank profits through size of the portfolio, and the relationship between credit risk and bank profits has been investigated by many previous studies. Several studies have been done to investigate how banks determine credit risk and its impact on bank profits. Bourke (1989) suggested that the effect of credit risk on profitability is negative. Sufian et al., (2009) studied the profitability of Bangladeshi banks between 1997-2004, to examine the relationship between bank specific characteristics and bank profitability, and their result concluded that credit risk had a significant positive impact on profitability. A study by Iannotta et al., (2007) reported that banks in the public sector tended to hold a lower quality of loans and therefore faced a higher risk of bankruptcy than other banks. On the other hand, mural banks held higher quality loans and enjoyed reduced risk to their assets compared to both private and public banks. In this context, Aburime (2006) reported that the relationship between bank risk and profitability is inconclusive. The study by Miller and Noulas (1997) reported that a decrease in profitability and an increase in unpaid loans and high-risk loans were problems facing the majority of financial institutions.

In this context, an increase in credit information sharing can reduce the credit risks which banks face (Flamini et al., 2009). Also, a study by Kliesen and Tatom (1992) argued that bank credit is affected by a decrease in bank capital due to monetary policy tightening, which leads to a decrease in bank liabilities. Brinkmann and Horvitz (1995) suggested that, to realise credit growth, banks should meet capital requirements to increase bank capital. The study by Akhtar (1994) emphasised that bank lending is affected by demand and supply. In addition, Berk (1998) stated that expenditures are affected by monetary policy via the supply of bank credit. This is argued by Bank lending channel theory, and is also supported by Guru et al. (2002), who found that high bank profitability is explained by efficient expenses management.

Bank risk is reduced by systematic monopoly power; this was found by Heggestad (1977) who studied the interaction of profitability, risk and market structure. Market concentration may have effect on credit, with the result of making the expansion of smaller firms more difficult. Thus, credit is considered one of the most impact factors in the productivity of small firms. Fries et al. (2002), and also Bashir (2000) suggested that the profit of a bank is affected by its credit portfolio in terms of both composition and size. The profitability of a bank can be improved by increasing the size of its credit portfolio (Rhoades and Rutz, 1982). Olajide (2006) argued that the failure of some banks is due to substandard credits, which are granted to their customers. Thus, credit portfolio impacts on bank profitability either negatively or positively in terms of its size or composition. Cooper et al., (2003) argue that a bank's loan portfolio can be changed by changes in credit risk. Consequently, credit risk will be reflected in the performance of an institution. This is supported also by Duca and McLaughlin (1990). In this vein, Lown and Wenninger (1993) on the one hand reported that decreasing demand for loans caused a decline in bank lending in the US over the period 1990-1991. On the other hand, in the period 1988-1989, the important factor impacting on bank lending was supply. Several studies have found a significant relationship between the efficiency of profits and credit risk. A study by Peek and Rosengren (1995a) found that there is a positive relationship between credit growth and bank capital. Fase (2001) examined the long-term influence of the development of the financial system on economic growth. This study found that there was a positive effect between these two factors.

3.3.6 Liquidity risk and profitability

Banks always try to have a balance between liquidity and profits, and this requires the ability to manage liquidity in bank investments. Several studies have examined the impact of liquidity on bank performance.

The studies of Molyeneux and Thornton (1992); Kosmidou, (2006) and Pasiouras et al., (2007) found the extent of a bank's liquidity was in inverse proportion to its profitability.

Several studies expected a positive relationship between bank profits and liquidity risks, such as that of Bourke (1989). Santomero (1997) and Allan et al. (1998) identified that bank risk consists of four forms; the first three risks are represented by 190operational risk, market risk and credit risk; while the fourth risk is liquidity risk. Santomero, (1997) stated that the risks of liquidity are impossible to transfer or eliminate, and must be managed by banks. Financial institutions are concerned with their risk, so they have two ways of reducing it in cases of increased uncertainty: they can either increases their saleable assets, or extend the range of assets they hold, or both. To sum up, bank risk can be separated into liquid and loan risk. Kumar (2008) stated that certain problems are caused by poor liquidity management, which banks face worldwide. Thus, the management of liquidity risk is very important for banks. Banks have responsibilities and a commitment to each transaction. Consequently, liquidity has become the most important element in risk management. Liquidity risks occur in banks if they are not able to meet their financial obligations when they come due. Kumar also identified several factors which have an impact on banks losing liquidity, such as crystallization of contingent obligations, unexpected market movements and large deposit withdrawals. Demirgüç-Kunt and Huizinga (1999) said that liquidity risk is created by short term funding and the ratio of customers to total assets. This means that high deposit withdrawals, requests for new loans and borrowing funds at high cost lead to liquidity risk. Berger and Gregory (1994) found that there are certain sources which lead to a reduction in money supply or a drop in demand for loans that play a prominent role in minimising bank lending. Angbazo (1997) suggested that in order to reduce their liquidity risk, banks should invest their liquid funds in two ways, first, in short term funds and, second, in cash.

The study by Angbazo (1997) of United States banks found that the relationship between liquidity risk and net interest margins is negative, while it is positive with management quality, non-interest bearing reserves and core capital. Also, the study by Athanasoglou, et al. (2006) into South Eastern European banks during the period 1998-2002 suggested that in order to improve the profitability of banks, these countries should improve operating efficiency and risk management by setting new standards.

3.3.7 Information Technology and profitability

Information technology is one of the determinants of bank profits, and the relationship between it and a bank's profit has been investigated by many previous studies. A study by Holden and El-Bannany (2006) into UK banking over the period 1976–1996 indicated that there is a positive relationship between investment in information technology systems and bank profitability. In addition, outputs and production technologies both affect profitability differently in small and large banks (Kwan and Eisenbeis, 2005). This idea is supported by Holden and El-Bannany (2006) who stated that production technologies and outputs also affect the profitability of banks, and there is a difference in profitability among large and small banks.

Most previous studies have found a significant relationship between bank profits and information technology systems, e.g. increasing net profits are reflected in increasing competitiveness, and decreasing costs are created as a result of using information technology, which is an important factor in increasing profits (Porter and Millar, 1985).

Improving profitability is influenced by decreasing transaction costs, such as banks using ATMs, which leads to a decrease in the number of employees and branches (Gupta, 1998).

3.3.8 Market share and bank profitability

Market share is one of the determinants of bank profitability, and there is a significant relationship between market shares and bank profit; this relationship has been investigated by many previous studies. Banks which have a large share of their markets also experience increased costs and tend to achieve lower margins o both their credit and deposit functions. Banks which seem to be making profits on their loans and deposit activities may actually only be achieving an overall loss on their equity, which is hidden by the support they receive from their national government. A reduction in the margins on a bank's loan and deposit activities is affected by a high market share, because of high costs (Fries, 2002). In the same vein, Berger (1995b) argued that as a result of reducing the expected costs of financial suffering, including insolvency, expected earnings are increased by a rise in capital. Berger (1995a) suggested that an increase in profits and market share is affected by managerial efficiency; however, he argued that there was a spurious positive relationship between profitably and market concentration. Some authors have found that profits and market shares rise as a result of superior management (Berger, 1995a and Athanasoglou et al., 2005).

3.4 Industry-specific determinants and the profitability of bank portfolios

There are some key industry specific determinants that can affect the profitability of bank portfolios: concentration, financial development, regulation of banks and, finally, ownership. A majority of studies have found that the profitability of a bank is significantly influenced by the structure of the banking industry, through elements such as concentration, the financial system and regulation (e.g. Claessens et al., 1997; Demirguc-Kunt and Huizinga, 2001; Demirgue-Kunt and Huizinga 2000). These researchers found a positive relationship between bank profits and concentration. In contrast, Athanasoglou et al., (2006b) state that the profitability of a bank is not significantly influenced by the structure of the banking industry.

3.4.1 Concentration and profitability

Concentration of ownership can have an important impact on the profitability of bank portfolios. The relationship between measures of market structure, either concentration or market share, and profitability has been studied a great deal in the banking literature, and a positive link has been found (Berger, 1995a). However, profitability related to concentration and market share is regressed in some studies. Their results found similar results, but with different interpretation (Berger, 1995a). Demirguc-Kunt and Huizinga (1999) indicated that lower margins and profits were affected by both lower ratio of market concentration and larger bank assets to GDP ratio. As a result, in the majority of studies concerning bank profitability and concentration (e.g. Berger, 1995a; Claessens et al., 1997; Mitton, 2002; Molyneux and Thornton, 1992; Demirguic-Kunt, 2003); these researchers found a positive relationship between bank profits and concentration. In contrast, Barth et al. (2004) and Athanasoglou et al. (2005) found that the profitability of a bank is not influenced by the structure of the banking industry.

Most previous studies have found a positive relationship between concentration and bank profits: four key studies follow. Claessens et al. (1997) studied bank ownership and corporate governance in the Czech Republic over the period 1992-95 through a cross-section of 706 firms. They reached the following conclusions. Firstly, the result of changes in governance of firms toward mass-privatisation in the Czech Republic gave firms more advantages, such as competition. Thus, concentrated ownership structure has an influence on the management of firms, and this influence is positive. Secondly, the high profitability and market value of firms are both affected by highly concentrated ownership. Consequently, they did not find any evidence which indicated that investment funds in a large ownership stake which is sponsored by a bank has lower profitability or market value.

By using eighteen countries in Europe over the period 1986- 1989, Molyneux and Thornton (1992) investigated the determinants of bank profitability. The results indicated that there is a relationship between the return on equity of banks and government ownership the one hand, and bank concentration on the other. There is a regression in the positive relationship between concentration and net margins of a bank, when there is less control exercised on both competition and inflation; hence the effect of the net interest margins across countries are explained by institutional indicators (Demirguic-Kunt, et al., 2003).

However, research including studies by Athanasoglou et al. (2005) has argued that banks face a reduction in their profits when their exposure to credit risk is increased above set levels, as a bank's profitability is directly influenced by bank capital. However, the profitability of a bank is not influenced by the structure of the banking industry. In 1979, Short (as cited in Barth et al., 2004) studied the relationship between bank profits and banking concentration. He identified some important variables, such as the rate of growth of assets for every bank, government ownership of the bank, and the profit rate of agencies. He also discussed bank volume and the relationship between capital adequacy and profitability. Short found a strong negative relationship between, on the one hand, profitability and government ownership; and between profitability and the efficiency of the bank on the other hand.

3.4.2 Bank financial development and profitability

The relationship between bank performance and the financial development of a bank was studied by Demirguc-Kunt and Huizinga (2001), using data on financial structure and profitability over the period 1990-1997, across developed and developing countries. The results of the study indicated that bank performance is affected by financial development.

Higher profits and margins are both increased by underdeveloped financial systems, while well developed bank systems have a positive relationship to efficiency and competition, but a negative relationship to profits. Also, Bashir (2000) argued that profitability is affected by stock market development and the relationship is positive. Ben Necer (2003) investigated the effect of bank characteristics and financial structure on the margins of interest and profitability in Tunisian banks.

The results show how the development of the financial market has affected bank profitability, reflecting compatibility between the financial market and banks. On the other hand, Athanosoglou et al. (2006) stated that a positive relationship between banking reform and profitability was not identified. Generally, there is still regression in the returns on equity which are achieved by banks. However, banks offer competitive margins on deposits and make comfortable margins on loans, which are achieved by reforms in banking policy and significant progress in banking (Fries et al., 2002).

3.4.3 Bank regulation and profitability

Casu, Girardone and Molyneux (2006) state that financial systems are prone to periods of instability and that the financial service industry is a politically sensitive one, and largely rely on public confidence provided by regulations. Casu et al. (2006) contend that there are three types of regulation which concern financial systems: systematic regulation (e.g. deposit insurance, lender of last resort); prudential regulation (e.g. consumer protection); and conduct of business regulation (e.g. advice given to consumers, fraud). Demirgue-Kunt et al. (2000) studied financial regulation to investigate the effect of its development on bank profits and margins, and the effect of financial structure on a bank's performance. The results indicate that profits and margins of banks both increase in developing countries, where banks are largely unregulated.

Hence, the development of bank regulation will decrease the profits and margins of banks.

Can a bank be allowed to fail? Without regulation banks could fail. Hutton (2007) explains that no central bank can let a major financial institution go bankrupt because of the potential effects it would have upon others in the industry, as well the economy. Davies (2003) argues that failure is an inherent part of a flexible, competitive, innovative capitalistic system. In other industries, companies would be allowed to fail. However the importance of banks in the economy means that they cannot fail. On the other hand, Buckle and Thompson (2004) state that history shows that unregulated systems with healthy competition maintain strong capital because the rivalry in the market ensures that bankers strike the correct balance between return for investors and depositor protection. The downside to this approach is that consumers' deposits face more risk as a consequence, which in terms of banking is not the service expected. There have been several key studies in this area. Although Haubrich and Wachtel (1993) suggest that there is a relevant connection between portfolio shift and regulatory changes, this has not been substantiated. By using overhead ratios, net interest margins, and profits, Demirguc-Kunt et al. (2004) studied how regulations affect performance. In addition, the influences of regulation and supervision measures on performance, development and bank stability were investigated by Barth et al., (2004a). Their findings raised concerns regarding excessive government regulation of banking activities and direct government. A lack on efficiency in domestic banking systems makes market penetration by foreign banks more likely, and rules must be liberalised to counteract this influence. However, résistance to the entrance of foreign banks may cause a lack of competitiveness in the in the domestic banking sector, with negative effects on the economy as a whole. Also, banks do take measures to reduce lending in order to respond to strict capital requirements. Furthermore, the effect of regulations on the crisis in the banking sector was investigated by Beck et al. (2006a). Several studies have examined the impact of national and transnational capital regulation on banks' performance.

Diversification of the determinants which were used reflects the differences in the interest margins and profitability in the commercial banks (Derurguic et al. 1999). Demirguic-Kunt, et al. (2003) studied the effect of capital regulation on margins. The results indicated that a tightening of banking regulations with regard to a ban's income and activities will increase its net margins. Garg and Chang (2005) studied the direct effects of capital regulations and capital requirements. They found a positive relationship between capital adequacy and the insolvency-risk index. Also, there was a positive relationship between capital adequacy and various financial performances. However, the relationship between the insolvency risk of banks and financial performance was negative. Caprio and Levine (2004) studied bank regulation and supervision to evaluate the relationship between determinants of organisation, practices, supervision, and development of the bank sector, efficiency and fragility. Jackson et al. (1999) said that a number of authors have studied capital regulation to investigate how actual capital ratios are impacted by capital adequacy regulations. However, they argued that there has been conflict between authors in terms of capital regulation and its influence on bank lending. The majority of authors do not accept that capital regulation has a significant influence on bank lending, for example Rime (2000), Shrieves and Dahl (1992), Jacques and Nigro (1997), Keeley (1990).

3.4.4 Ownership and profitability

Ownership is considered to be one of the determinants of bank profits, and this relationship has been investigated by many previous studies. Most previous studies have found a positive relationship between ownership and bank profits. Several authors have concluded that in developing countries domestic banks are less profitable than foreign-owned banks, and also more profitable than foreign-owned banks in industrial countries, because of some preferential treatments such as benefits derived from tax breaks (e.g. DeYoung and Nolle, 1996; Vander Vennet, 1996; Demirgüç-Kunt and Huizinga, 1999;

Bashir, 2000; Berger et al., 2000; Clarke et al., 2000; Naceur, 2003; Bonin et al., 2005; Jeon et al., 2004; and Micco et al., 2005). Bonin et al. (2005) stated that the efficiency of foreign banks in transition economies is greater than that of from state-owned banks. On the other hand, several authors such as Bourke (1989) and Molyneux and Thornton (1992) suggest that there is not necessarily a link between profitability and ownership statutes. Micco et al. (2005) found that the relationship between performance and ownership in industrial countries is not strong. This is supported by Košak and Čok (2008) who studied the relationship between bank ownership and bank profitability for six countries in South-Eastern Europe in the period 1995 -2004. Their results showed that measurement of profitability in domestic and foreign owned-banks does not reveal substantial statistical differences. However, they found several other factors related to bank profitability. Foreign ownership may have an impact on bank profitability due to a number of reasons. Several studies have examined the impact of ownership on bank profits. A study by Demirguc-Kunt and Huizinga (1999) showed that net interest margins and profits in developed countries were lower in foreign banks than domestic banks, while the opposite held true for developing countries. Tang et al. (2000) studied financial crises and their impact on fiscal costs in Central and Eastern Europe over the period 1990-98. The result of this study indicated that the fiscal cost of bank restructuring was increased by capital which is introduced by foreign investors. Claessens et al. (2001), claim that in developing countries, domestic banks have higher interest margins, overhead expenses and profitability, while the opposite applies for developed countries.

In the former, the reductions of non-interest income, profitability and the overall expenses of domestic banks are affected by the increasing presence of foreign banks; also the efficiency of domestic banks derives from the competitive pressure of foreign banks. This is also supported by Robert and Niels (2004).

Unite and Sullivan (2003) conducted research into bank ownership. They found that bank risk and operating expenses were both affected by the entry of foreign banks in the Philippines. The introduction of foreign banks had a positive relationship with operating expenses, and a negative one with banking risk. Banks facing competition are forced to take on less creditworthy customers for credit purposes. Bonin et al. (2005) studied bank ownership, efficiency and performance in eleven transition countries over the period 1996-2000. Their results indicated that cost-efficiency in domestic banks is lower than in foreign-owned banks. This is also true in terms of services. Finally, foreign banks improve the culture of corporate governance. Several studies have investigated the relationship between the efficiency of profits and ownership. For example, Sturm and Williams (2004) stated that profitability is not affected by ownership. Domestic banks operating in the U.S were significantly more efficient than foreign banks. DeYoung and Nolle (1996) found that during the investigated period (1985-1990), in 6a study on the efficiency of profits in U.S.-owned banks and foreign-owned U.S.-based banks, U.S.-owned banks were more profitable than foreign-owned banks. Several authors have investigated whether state-owned banks are less profitable than privately owned banks (Athanasoglou et al., 2005; Micco et al., 2004; Barth et al., 2004; La Porta et al., 2002a; Sapienza, 2004; and Short, 1979). This is supported by Iannotta et al. (2007), who emphasised that mural and state-owned financial institutions were less profitable than private banks, despite their lower costs. Given the fact that one of the main aims of public banks is a social mandate, this affects public banks' profitability. Effectively banks adhere to a social mandate instead of maximizing profits (Brainard and Tobin, 1968). In this context, Iannotta et al. (2007) stated that the diversity of ownership holding of a bank was not found to influence its profitability. In additional they argued that loan quality, lower asset risk and lower insolvency risks are associated with a higher ownership concentration.

Flamini et al. (2009) stated that bank profitability is associated with private ownership. A study by Micco et al. (2005) found that private banks in emerging economies tended to be more profitable and efficient that government controlled competitors, but also that they compared less favourably with foreign banks inhering their market, although, foreign banks were willing to sacrifice their profits in order to achieve their growth aims. This was consistent with William's (1998) results.

3.5 Summary

The researcher in this chapter has tried to review the relevant literature in order to understand factors influencing the profitability of commercial banks, so that the researcher is able to develop a framework for analysing their profitability. So the researcher introduced in the first part in this chapter the topic of assets and liabilities management, while the second and third topics were bank-specific and industry-specific determinants. The main aim of this was to understand their effect on bank profits in previous studies, whether in developed countries or developing countries: this review of the literature also allowed the researcher to compare his findings with previous studies.

Chapter four

Macroeconomics factors and their impact on bank profitability

4.1 Monetary policy and its impact on bank composition and profits

4.1.1 Composition of bank portfolios and profits

Several studies have been conducted to investigate how portfolios are related to monetary policy and their impact on the real economy. All sectors in the economy deal directly with commercial banks. The role of commercial banks is as depository financial intermediaries, and their role as intermediaries enables them to hold a wider range of different assets than any other financial institutions (banks, trust companies, consumer finance companies, savings and loans, credit unions, pension funds, insurance companies, and mutual funds) (Roley, 1980).

Commercial banks are considered as one of the most important intermediary financial institutions. They play an important role in financing economic growth largely because of the problems other financial institutions face, such as the high cost of operations in the market and asymmetrical information. Hence, commercial banks are superior to other financial institutions.

In this connection, Stiglitz (2003) stated that financial institutions play a prominent role in supporting the development of other sectors, and advancing economic development through efficiency and the mobilisation of resources According to the theory of supply and demand, at the beginning of each period the bank holds different categories of assets available for inclusion in their portfolio. Then the return from each asset in their portfolio may be determined and its ratio in the overall profits may be calculated (Blair and Heggestad, 1978). Robinson (1962, cited in Hester and Pierce, 1975), stated that there are priorities in the employment of bank funds. The priorities in descending order are: (A) legally required reserves, (B) secondary reserves, (C) customer credit demands, and (D) open-market investments for income. Deposits and consumption opportunities have an impact on a bank's portfolio during the operations of an important purchase (Peck, 2003).

Another of the problems confronting the allocation of a bank's portfolio are the costs imposed by a monetary authority (Elyasiani et al. 1995). In addition, there could be possible losses because of high costs given the maturity imbalance of a bank's portfolio. Thus, a bank's capital must cover all of these factors (Samolyk, 1989). In order to change bank portfolio behaviour to reflect a shift in function or a change in the shape or both, a change must be made in the monetary management of commercial banks (Andersen and Burger, 1969).

Monetary policy has a significant impact on the macro-economy during changes in monetary supply. Consequently, it will influence the composition of a bank's portfolio, as Silber (1969) noted, and his research question was, "What is the relative importance of the bank portfolio composition and the money supply in evaluating the impact of monetary policy?" (p. 81). Monetary policy works on the evolution of the economy by influencing the prices and yields of financial assets (Bernanke and Reinhart, 2004). Banking behaviour may be affected by monetary policy and banking policy, not only via changes in constriction and incentives, but also via changes in interest rates (Stiglitz, 2003). In the same vein, the Basel 1 capital requirements have had a significant impact on loan supply (Brinkmann and Horvitz, 1995). So far, the role of bank credit has been neglected in the literature of monetary policy. Money has been more important than credit (Liquidity Preference) in monetary thinking; a fact which is reflected in the literature (Gerler, 1988).

A change in monetary policy has an immediate impact on the demand for credit. This is mirrored in the adjustment of a commercial bank's portfolios. The composition of portfolios in commercial banks may explain the transitional process of monetary policy (Silber, 1969). Zulverdi et al. (2006) refers to how commercial banks portfolio behaviour maximises the utility and the efficiency of monetary policy, and how micro-banking conditions and prudential regulations have an impact on the effectiveness of monetary policy.

Similarly, structural changes in banks and fluctuations in the number of borrowers also affect the smoothness and effectiveness of monetary policy in encouraging economic growth. Finally, this section will look at five key studies into the relationship between monetary policy and the composition of bank portfolios.

Haubrich and Wachtel (1993) studied the requirements of capital and changes in commercial portfolios in a study of the quarterly data of commercial banks in order to review the evidence that change in bank portfolios is consistent with organisational change. They found that capital requirements have an influence on the reaction of portfolio behaviour by commercial banks during change in the adequacy of capital ratio. Capital requirements also have an effect on the composition of a bank's portfolio. There are also risks of financial collapse and an associated government bailout, which have an impact on bank portfolios.

Zulverdi et al. (2006) studied the behaviour of Indonesian banks in the composition and selection of their portfolios, and their effect on monetary policy, to understand the bank's portfolio behaviour in increasing their profits. The results indicated that monetary policy in Indonesia was affected by the condition of small banks and potential regulations, and also changes in the structure of banks and borrowers.

Andersen and Burger (1969) studied the portfolio behaviour of commercial loans by asset management. Two aspects were investigated. The first aspect had two alternative hypotheses related to commercial banks' behaviour: the "accommodation principle" implied loan theory and "portfolio maximization principle" led to the recent development of portfolio theory. The second was an investigation from which a significant change in bank portfolio behaviour in recent years can be seen. Moore et al., (2003) studied Indian banks over the period 1951–1994, to estimate asset demand functions. Their results indicated that variable reserve ratios have an important impact on portfolio composition.

Pankratz (1990) studied bank portfolio composition instruments or indicators and formulated the following research question: “Should a commercial bank portfolio be used only as an indicator of macroeconomic and monetary trends?”, or, on the other hand, “Should it also be an instrument of macroeconomic policy?” And “in particular, should the monetary authority attempt to control the quantity of bank loans by loans of direct controls?”

4.1.2 The impact of monetary policy on bank profits

For a long time, economists have understood how the monetary policy process is affected by the quantity of money in market (Friedman and Kuttner, 1992). Later authors introduced the information-variable concept into the analysis of monetary policy. Friedman and Kuttner (1992) studied how the passage of time, in particular the experience since 1980, has altered traditional relationships previously understood to support a significant role for money in the process of monetary policy. They found the spread between the rate of commercial papers and the rate of Treasury bills constantly carries very important information regarding possible future changes in real income. They suggest the rate of the commercial paper bill or the spread between the rate of the commercial paper bill and the Treasury bill as candidates to measure the stance of monetary policy. Bemanke (1990) and Bemanke and Blinder (1992) argue that the rate of federal funds is the best candidate for measuring monetary policy in the post-war era. In addition to using market interest rates and monetary aggregates as the measurement of monetary policy, many scholars have also proposed several alternative methods. Sims (1980) and Friedman (1983) both used the rate of commercial papers for this purpose. Litterman and Weiss (1985), Eichenbaum and Singleton (1986), as well as Stock and Watson (1989a) unanimously used the rate of Treasury bills.

Bernanke and Blinder (1992) show that predictive power on economic activities using the rate of federal funds as a monetary policy indicator is superior to that of using broad

monetary aggregates (MI, and M2). They find that the rate of federal funds and the spread between the l0-year Treasury bond and the federal funds rate are the best monetary policy indicators to predict economic activities. As a matter of fact, at the very end of their paper, they emphasise that the rate of federal funds is the most appropriate measurement for monetary policy.

In a similar manner, Sims (1992) also concludes that short-term interest rates are a good measurement of monetary policy, in his multi-country study. Romer and Romer (1989) reintroduced the "Narrative Approach" to identify the stance of monetary policy, called Romer and Romer date, by studying the Federal Open Market Committee directives of monetary policy and related records.

Sims' (1972) empirical consideration of whether money can usefully play a role in the monetary policy process appropriately focused not just on whether fluctuations in money help to predict future fluctuations in income, but on whether they help predict future fluctuations in income that are not already predictable on the basis of fluctuation in income itself, or other readily observable variables. Sims (1980), Eichenbaum, and Singleton (1986), and Christiano and Ljungvist (1988) use one of the monetary aggregates as a measure of the stance of monetary policy to analyse the effects of monetary policy on income level.

Eichenbaum (1992), and Christiano and Eichenbaum (1992) suggest that non-borrowed reserves are the best measurement of monetary policy. They argue that, unlike the broad monetary aggregates (M1, M2, or monetary base), non-borrowed reserves are directly and fully controlled by the monetary authorities. Hansen noted that the Federal Reserve System inevitably influences the profitability of the banking system so long as it maintains control over an effective legal reserve ratio and a scarce stock of legal reserves (cited by Greenbaum et al., 1976). The central bank controls legal reserve requirements against time and demand deposits, and the quantity of legal reserves in the banking system.

Greenbaum et al. (1976) used alternative combinations of open market operations and reserve requirements to assess differences in banking profitability. The contradictory (expansionary) effects of monetary policy on transactions deposits are completely offset by increases (decreases) in non-transaction deposits. Thus, the effects of a difference in monetary policy will be much weaker when substantial shares of banks are capital constrained, (Peek and Rosengren, 1995b). Hansen, (cited by Greenbaum et al., 1976) stated that bank profits are affected by the Federal Reserve System so long as it sustains control over an effective legal reserve ratio and a sparse stock of legal reserves. In order to have control of the money supply and domestic credit, the Central Bank manages its monetary policy with commercial banks by using one of the tools at its disposal. One of these is the legal reserve requirement, used in order to affect demand and time deposits, thus influencing the quantity of legal reserves in the banking sector. In the same vein, to assess the level of difference in bank profits, Greenbaum et al., (1976) used reserve requirements and open market operations.

4.1.2.1 Interest rate policy and its impact on bank portfolios

Important changes in interest rates and the money supply may have a significant influence on economic level, even though there is a debate over the possibility of using monetary policy as an instrument to achieve economic stability. The profits of banks are generated by revenue on loans, comprising the interest received (minus interest rates paid for deposits); consequently, profitability should increase due to increases in credit volume (Rhoades and Rutz, 1982). There are two types of bank interest rates: first, the interest rate paid by a bank on deposits received from depositors: second, the interest rate received by a bank on loans to clients. The interest paid on deposits by banks is part of the profit function (Fries et al., 2002). Bobáková (2003) suggested that the ability of a bank to foresee, avoid and monitor risks (including interest rate risks) has an effect on the profitability of a bank.

Financial institutions (bank holding companies), in a similar way to banks, can orientate their policies to change the constitution of balance sheets, whether in terms of assets or liabilities. As a result, interest rate risk can be altered, given that there is an active market for derivatives (Hirtle, 1997).

Assets that banks hold are not affected by the interest rate mechanism. The interest rate mechanism would have the same response regardless of the proportions of a bank's assets that are held (Ben and Alan 1988). Interest rates are one of the determinants of bank profits, and the relationship between interest rates and bank profits has been investigated by many previous studies. Interest-rate swings have a direct impact on the relative values of bank assets, liabilities and bank earnings (Sarnolyk, 1989).

This also supported by Hirtle (1997), who reported that the fundamental strategy of commercial banks is affected by regulating the composition of a bank portfolio. This is due to the fact that interest rate risk is high when banks want to achieve any given level for investments. A bank's interest rate policy has an effect on the profitability of a bank. Thus, to enhance profitability, a bank can adjust its interest rate policy.

Fischer and Jordan (1987) maintain that when interest rates rise, there is good compensation on bank deposits, and this encourages the investor to choose this investment in preference to other investments. Naceur and Kandil (2006) concluded that an increase in capital requirement has an impact on credit expansion and credit growth, and restricts bank activities.Thus, they stated that regulatory restrictions on bank activities may increase net interest margins or overhead costs. In the same vein, the determinants of interest margins and profitability were studied by Demirgue-Kunt and Huizinga (1999). Reilly (1985) indicated that with a rise of interest rates, investors prefer to buy to benefit, i.e. to contract to buy more shares against paying less money than the market value of the shares. The capital account of banks changes when there is a change or fluctuation in the interest rate. Consequently, this changes a bank's portfolio (Samolyk, 1989).

Samolyk also states that dealing with capital inadequacy prevents a bank from investing in the optimal portfolio. Brigham and Capenski (1987) and Hunag and Randal's (1998) shared views indicated that if the interest rate in a market is high, this will mean prices for shares will be lower. This should create a rise in demand for purchases and increase their price in the market. As is widely known, financial institutions face challenges in order to achieve their profit objectives. These include accepting interest-sensitive liabilities and investing in interest-sensitive assets, both of which increase a bank's risk, influencing the main policies of investment. Hirtle (1997) added that, given that a bank's investment operations have different maturities whether in assets or liabilities, an interest rate risk may be created by altering the timing of payments. Due to continuous fluctuations in a bank's expected changes in interest rates (whether collapse or increase); a bank's revenue and net value to financial institutions are highly affected by its interest rate risk. In addition, Hirtle (1997) added that the level of income and net worth fluctuate as a direct result of disparities in the maturity of liabilities and assets, and off-balance sheet positions. Interest rate deregulation and capital requirement have an influence on bank portfolios, as suggested by Lam and Chen (1985).

Commercial banks will become more closely involved than ever before in interest rate mechanisms of the money and capital market, which implies an addition to the internal risk represented by cash flow. Hence, there is the external risk manager's face when value-maximizing. There is a positive relationship between the velocity of income of a bank and interest rates. This has an impact on non-bank financial behaviour.

Any changes in the mobility and velocity of income will influence a bank's portfolio composition, and it has been suggested (Silber, 1969) that bank portfolio composition has an impact on velocity as well. Alternatively, Silber states that velocity of income may be an independent variable to a bank portfolio. Ben-Khedhiri, Casu, and Sheik-Rahim (2005) selected the period between 1996-2003 in Tunisian banking to study profitability and interest rates differentials.

The study was more specific about the determinants of banks' net interest margins, because they were identified as one of the indicators of the sector's efficiency. The results of the study indicate that there are three main factors that contribute to an increase in profitability: (1) higher leverage ratio, (2) greater size of operations, (3) lower operating costs. There are also factors that explain bank interest differentials such as regulatory changes and bank-specific variables. However, bank margins do not impact on macroeconomic variables. Doliente (2003) studied four banks in South-east Asian countries to understand the determinants of net interest margins. Doliente used the dealer model and found that net interest margins are partially explained by bank specific factors, namely operating expenses, capital loan quality, collateral and liquid assets. Wong (1997) studied credit and interest rate risks and their effect on the interest margins of banks. The result of this study indicated that the higher the interest margins and the higher the market risk, the more stable the economic value. In the same context, Wong added that the market power of banks, the operating costs, the degree of interest rate risk and the degree of credit risk are influenced by the bank interest margin.

4.1.2.2 Exchange rates and their impact on bank portfolios

The literature reveals that different opinions exist on whether local monetary authorities should intervene in exchange markets or not. The demand for local currency is influenced by changes in local and foreign currencies. Therefore, the local economy may be exposed to both local and foreign monetary shocks. Any change in the exchange rate carries risks for the portfolios of commercial banks, specifically when the exchange rate is uncertain. The analysis of both floating and quasi-floating rates and their impact on a bank's portfolio is important (Makin, 1978). Johnson (1969) argues that local monetary authorities must not hesitate to intervene in exchange markets where appropriate, in order to maintain the financial system and stability of the economy.

However, where possible the forces of supply and demand should define the exchange rates of foreign currencies without restrictions being imposed on them. Exchange rate changes have a slight impact on portfolio transformation. This means that the process of change from one to another portfolio within a short period will be easier for economic agencies that holding idle cash (Krueger, 1998).

In view of this, Fatum and Hutchison (1999) added that the exchange rate may be influenced by intervention of the central bank to sterilise the foreign exchange market. Fluctuations in capital flow in the short term are due to the changes that occur in the real exchange rates. Therefore, the changes in the volume of the dealt currency will have an impact on the volume of the foreign assets in the Central Bank. Therefore, the balance sheet of the Central Bank is influenced by the real exchange rate. This change forces the Central Bank to adopt serious measures in its monetary governing policy (Kipici, 1997).

A number of authors (e.g. Friedman, 1953, and Johnson, 1972, both cited by Thomas, 1985) have investigated why supply-side monetary substitutability has a negative effect on domestic monetary policy. They suggest flexible exchange rates as a solution to this problem. Thomas (1985) studied two scenarios: firstly, when a foreign currency rises against the domestic currency, and secondly, when the domestic inflation rate is expected to rise. In both cases, a portfolio balance is achieved by changing domestic currency to foreign currency. This is the policy followed by agents in order to balance their portfolios.

Several authors (Dominguez and Frankel, 1993; Obstfeld, 1988; Kearney and MacDonald 1986; Richard et al., 2000; Atish, 1992; Fatum and Hutchison, 1999; Robert and Broadbent, 1994; Dominguez, 2006) have studied the effect of portfolio balance channels and the intervention of the Central Bank. The main aim of the central bank in a country is price stability. Therefore it governs movements of future currency. The central bank intervenes by buying and selling currencies of foreign exchange in foreign exchange markets.

Richard et al., (2000) agrees that the exchange rate is affected during an intervention by the central bank. This is by a portfolio balance transmission channel, or a monetary one. Also, Dominguez and Frankel (1993) argued that the exchange rate is affected by the intervention of the Central Bank. This particularly impacts on excess demand in the exchange rate market and the interaction of economic variables. They added that the intervention of the Central Bank may also be in the interest of price stability. The intervention of the Central Bank affects portfolio-balance by changing the supply of domestic and foreign assets. However, this action does not have a significant effect on portfolio-balance, only a marginal one. On the other hand, Obstfeld (1988) maintained that the portfolio channel is not affected by the exchange rate in the market.

Changes are due to a large daily turnover in the market, associated with relatively low volume of interventions from the Central Bank. In the same context, using a small model of portfolio balance, Kearney and MacDonald (1986) found that intervention in foreign exchange market influences exchange rates in the UK. Atish (1992) also concluded that the exchange rate is slightly affected by portfolio balance, during a study of the influence of changes in relative asset supplies on foreign currency. On the other hand, Robert and Broadbent (1994) found that the Reserve Bank of Australia obtained significant profits by means of interventions to stabilise the Australian dollar. In contrast, Dominguez (2006) found that the exchange rate in the long-term is not influenced by interventions of the central bank.

4.2 Macroeconomics and the profitability of bank portfolios

4.2.1 Introduction

Variations in bank activities, financial leverage, and the macroeconomic environment such as inflation and economic activity, will lead to an increase in the ratios of bank assets to gross domestic product and market concentration; hence, there will be a decrease in interest margins and profits. The results of a study of the overall banking

environment and bank characteristics by Demirgüç-Kunt and Huizinga (1998) showed that profitability is affected by macroeconomic and regulatory conditions. In developing countries, the differences in interest and profit in foreign banks will be more than in local banks. The situation is reversed in industrial countries (Demirgüç-Kunt, 1999). Several studies have been undertaken to investigate how macroeconomics affect bank profits. It is considered one of the key determinants of bank profits. Necer (2003) investigated the effect of indicators of macroeconomics on the profitability on Tunisian banks. The findings of this study indicated that bank profitability is not affected by macroeconomic factors. In addition, determinants of bank net interest rate margins are explained by Al-Haschimi (2007) in a study of ten Sub-Saharan Africa countries. He found that net interest rate margins in banks are influenced to a limited extent only by macroeconomic risk; and he also found that the changes in net interest margins across the region are explained by operating inefficiencies and credit risk. The determinants of interest margins were also studied by Saunders and Schumacher (2000), over the period 1988-1995 in the US and six European Union countries. Their results indicated that a bank's interest rate margin is affected by regulations and macroeconomic volatility. Also, Bashir (2000) and Flamini et al. (2009) argued that profitability is affected by macroeconomic conditions, and that the relationship is positive.

In addition, several authors such as Short, 1979; Molyneux and Thornton, 1992; Athanasoglou et al., 2008 have argued that different macroeconomic factors have an influence on the ability of banks to create profit. Due to changes in the macro-economic environment which have an influence on bank profit, banks in more concentrated markets, if they want to leave their returns unaffected, should be able to adjust their spreads (Flamini et al. 2009). In this context, the period between 1994 and 2008 was investigated in terms of the influence of oil price shocks on bank profits in MENA economies by Poghosyan et al. (2009). Their result reported that banks' profitability was affected. In this vein, in a recent study by Al-Hassan et al. (2010) reported that an

increase in lending rates, as a result of increased oil prices preceding the financial crisis, had significantly positive impacts on credit growth.

4.2.2 Inflation and profitability

Inflation is one of the determinants of bank profits, and the relationship between inflation and bank profits has been investigated by many previous studies. In order for banks to increase their profits in the face of inflation, the management of the bank must adjust their interest rates to rise faster than costs. Thus, inflation impacts on the profitability of the bank, and sustained profitability depends on accurate prediction of inflation, (Perry, 1992). A majority of studies have reported that there is a positive relationship between profitability and inflation or interest's rate in the long term (Bourke, 1989; Molyneux and Thornton, 1992). In contrast, other macroeconomic elements may be affected by a reduction in loans in terms of economic growth, income, and unemployment. Thus, the relationship between profitability and inflation is positive (Kunit and Huizinge, 1999). Interest rates which have improper adjustment might be the result of associated unanticipated inflation.

Several authors (e.g. Bourke, 1989; Molyneux and Thornton, 1992) argue that revenues could be lower than costs. They found the relationship between bank performance and inflation is positive. Staunton et al. (2002) found that inflation has a positive relationship with bank performance, while low bank profitability is affected by a high interest ratio. A stable output growth and low inflation both enhance banks' credit expansion; this means macroeconomic policies have a direct impact on bank profits (Flamini et al., 2009). On the other hand, Sayilgan and Yildirim (2009) stated that consumer price index inflation affects profitability indicators negatively in a statistically significant manner. Other studies have shown that interest rates and profitability margins are not affected by economic indicators such as inflation and growth rate.

Additionally, individual characteristics of a bank largely affect the bank's interest and profitability margins. The bank's profitability is also directly affected by economic activities (Necer, 2003). Macroeconomic variables, bank-specific variables and regulatory components over the period 1988-1995 across 80 countries were studied by Demirguc-Kunt and Huizinga (1999). The result of this study indicated that bank interest margins were increased by several variables such as high inflation, overhead costs, greater bank size, high foreign ownership, high ratio of loans to total assets and high ratio of equity to assets.

By using data at a national level in Latin America, Gelos (2006) found that several factors such as higher reserve requirements, lower bank efficiency and relatively high interest rates are triggered by the spread of inflation. In the same vein, according to the results of some authors, the relationship between bank profitability and the economic cycle exists. To measure the cycle researchers have used indirect variables, e.g. Bikker and Hu (2002) used interest rate, unemployment and GDP (macroeconomic variables), while Demirguc-Kunt and Huizinga (2000) used per capita GNP and the annual growth rate of GDP.

4.2.3 Per capita income, unemployment and profitability

Several studies have been conducted to investigate how bank profits are related to per capita income, and have found a relationship between these two factors. Neely and Wheelock (1997) studied why bank performance varies across countries in US-owned and other commercial banks by using per capita income over the period 1980-1995. The result of this study indicated that bank profitability is affected by per capita income. This affect is positive. On the other hand, Athanasoglou et al. (2005) studied South-Eastern European credit institutions between 1998 and 2002. They found that fluctuations in per capita income do not significantly affect bank profits.

In addition, the determinants of the profitability and interest margins of banks were investigated by Abreu and Mendes (2002) in several European countries. Their results indicated that profitability can be explained by unemployment, although all regressions were negative.

4.2.4 Business cycles and profitability

As mentioned before, the performance of the banking sector is influenced by macroeconomic variables, such as inflation and cyclical output. Athanasoglou et al. (2005) suggest that profitability is influenced by the business cycle, given that profitability is positively correlated with the business cycle, and is influenced by the size of a bank. The effect of the business cycle is asymmetric, since it is positively correlated to profitability only when output is above its trend. Banks face reductions in their profits when their exposure to credit risk is increased above set levels; a bank's profitability is explained by bank capital. Bikker and Hu (2002) examined the relationship between banks' profitability and business cycles using 26 countries. The results of this study indicated that a correlation exists. They concluded that fluctuations of profits are affected by business cycles. Athanasoglou et al. (2005) studied the Greek banking industry and used the business cycle measure, namely cyclical output, to measure the profitability of banks.

4.2.5 Income tax and profitability

Income tax is a further determinant of bank profits. The relationship between income tax and bank profits has been investigated by many previous studies. A lower after-tax return on equity leads to an increase in capital-asset ratios. A reduction in the equilibrium expected return on equity required by investors is affected by reducing the risk on equity, resulting in an increase in capital-asset ratio. In addition, after-tax earnings are reduced by a higher capital ratio by reducing the tax shield provided

(Berger, 1994). Albertazzi and Gambacorta (2006) investigated how corporate incomes tax impacts on bank profitability in terms of both an empirical and a theoretical perspective. They used data for ten industrial countries during the period 1980-2003, based on figures from balance sheets and income statements. Their research results indicated that tax shifting is uncertain a priori, since corporate income tax affects banks and non financial corporations as well. On the other hand, the study by Basher, (2000) stated that profitability is affected by the impact of taxation, and the relationship is positive.

4.5 The Impact of the Financial Crises on the Banking System

According to (Schachler, Juleff and Paton, 2007), banks have become the most important component of the financial industry; since a critical aspect of any economy is its financial services. Allen et al. (2002) notes the importance of composing a countries financial balance sheet; (Allen et al., 2002) suggests that it helps a country determine the time required and also the time available to the country to overcome doubts on its strengths in terms of its macroeconomic policy framework and also the effectiveness of a country's insulation for itself against the volatility stemming of the constant changes in the global market. The loss in value of a loan portfolio is generated by the changes in the credit risk quality of the loans that make up the loan portfolio. Changes in the quality of credit risk are described by the portfolio as multivariate distribution.

Thus, the multivariate distribution portfolio is used to simulate the possible losses that a loan portfolio experiences. This kind of losses make the multivariate distribution is constructed. To obtain an accurate estimation of the multivariate distribution portfolio, the portfolio should incorporate the challenges and effects of the present changing economic condition to enable it consider the effects of diversification and concentration. This is mostly because; the loan credit risk is affected by the present economic condition in its system the default dependence among the loans making up the

portfolios. When a bank faces liquidity, its primary concern in addition to its losses and capital shortages will be the lending stance becoming cautioned. A negative effect of the impaired functioning of a financial system is experienced by the economic activities, which in turn adversely affects the quality of assets possessed by financial institutions and their investors. (Herrero, 1997) suggests that the present situation in the financial institution is as a result of the adverse feedback between the financial systems and the economy.

Nier et al. (2008) points out that, most financial institution still experience significant amounts of credit losses and pressure on the balance sheets, usually in this situation, the available credit remains constrained for some time. Diamond and Rajan (2006) notes how the borrower's defaults leads banks to avoid roll over's in terms of credit given to borrower's in arrears, and this makes banks decline interest in the reconstruction of these projects when banks are faced with the threats of a depositor's run. In other words, these shows how a banks' balance sheet can lead to a reduction in its credit supply (Nier et al., 2008). Similarly, Brunnermeier and Pedersen (2007) note how investments made by banks provides insufficient amount of liquidity to the when faced with the subject of funding constraint.

The rationing of liquidity becomes more sever when ever banks sustain losses that impacts negatively on their balance sheet. A number of studies argue that, the tight monetary policies leads to the tighter financing conditions in banking sectors, this (Stein, 1998); Chiesa, 2001; van den Heuvel, 2001; Diamond and Rajan, 2006) suggests may amplify the effects of a credit squeeze, i.e. the monetary policymakers being aware that they can use the power of the monetary policy to help offset the adverse effects of financial instability on real activity (Nier et al., 2008). The initial capital is often more important in bracing the effects of the losses on the growth of loan during a time of crisis. However, the interaction between the losses (initial capital and monetary policy) develops a greater force in a crisis situation (Nier et al., 2008).

The Central Banks has been able to provide the much needed supply of liquidity to the financial sector, and a large fiscal stimulus package that focuses on the minimization of hardship on low-income households; this was also introduced by some developing countries in the months following the onset of the crisis (Sirimanne, 2009).

4.6 Summary

Commercial banks are considered as one of the most important intermediary financial institutions. They play an important role in financing economic growth. For this reason, the researcher has tried in this chapter to review the relevant literature on this area such as monetary policy, macroeconomics, and financial crises and their impact on bank profitability, in order to understand factors influencing the profitability of commercial banks. The researcher has taken into account that these factors will be used in his research; also this review of literature allows the researcher to compare his findings with previous studies, whether in developed or developing countries.

Chapter five

Framework development

5. Framework development

5.1 The Statistical Cost Accounting model (SCA)

Many theories have been suggested surrounding commercial banks' behaviour (Hester and Zoellner, 1966). The motivating force identified in all of these theories has been some form of profit maximisation, either implicitly or explicitly. A bank's portfolio is therefore determined most importantly by the profits realised from its assets and liabilities. As a corollary, an important determinant of its profits is the composition of a bank's portfolio. To get an accurate picture of a bank's portfolio, both its assets and its liabilities must be considered. The elements of a portfolio are non-negative in amount. Rates of return of a portfolio may be either positive or negative. The positive returns come from the earning asset elements in the portfolio and the negative from the deposit liability elements, (rates of cost). Servicing and processing costs must be offset when considering the rates of return on earning assets, which makes them difficult to observe accurately in most cases. Similarly, the relevant rates for liabilities are not easily observable. Interest payments per dollar to depositors as servicing costs, net of service charges, must be added. Estimates of these net rates must therefore be made before any theory is applied to a banks' portfolio behaviour (Hester and Zoellner, 1966).

The SCA method is a notion that emphasises the distinct attributes and cost of both the assets and liabilities of a bank. In the banking sector, thus the forecasting of profit should be based on the knowledge of a bank's assets and liabilities composition. The method of profit forecasting has being applied by based on the relationship between earning performance and the structure of a bank's balance sheet. Studies by Hester and Zoellner (1966); Hester and Pierce (1975); Hester (1979); Bond (1971); Vasiliou (1996); and Calcagnini and Hester (1997) made estimates of different banks' rates of returns, positive and negative, using variations of 'least squares' statistical cost accounting techniques.

Studies by Taylor (1968), Haslem (1969), Harlem and Longbrake (1971), Gady (1972), Bryan (1972), Fraser (1976), Kohers and Simpson (1978), Kwast and Rose, 1982 and Asiri 2007, on the other hand, used a variation of the aforementioned SCA. These studies related the composition of banks' loan portfolio to their average yield.

The results of these studies showed that variations in banks' earnings could be explained by variations in their portfolios, and that the rates of return were not the same for all balance sheet items. Studies such as those carried out such as Anderson, 1979; Grandstaff, 1979; Kosmidou et al., 2004, and Sayeed and Hoque, 2008 examined how more specific bank functions affect their earning potential.

5.2 The Traditional Model

The model of SCA, as used by Hester and Zoellner, (1966) and some other authors writing on commercial banking, takes as given that bank maximise profits to be competitive. In this way, changes in the income of banks could be described by a linear equation. Therefore, Hester and Zoellner stated that other explanatory variables, reflecting the composition of assets and liabilities, were included in their regressions to improve the fit. They did not formulate their model to derive estimates of net rates of return. Thus, the regressions explaining costs, revenue, and earnings did not include all earning assets and deposit liabilities as explanatory variables. This omission has the effect of biasing estimates of rates of return if omitted variables are correlated with the included variables. One reason for omission of some categories of assets and liabilities was serious co-linearity, resulting from the particular form in which variables were introduced. The SCA method suggests that assets can vary depending on if the rate of return on earning is positive, while liabilities depend on how negative the rate of cost is on liability. According to Hester and Zoellner (1966, p 373), the SCA model is defined as a method of regression, which "rates of return are imputed to earning assets and deposit liabilities".

This is illustrated in the following equation:

$$Y_{bt} = \alpha_{1_\alpha} + \sum \alpha_{2i} A_{ibt} + \sum \alpha_{3j} L_{jbt} + e_{bt} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where,

Y_{bt} = Net operating return = current operating revenue - current operating cost

A_i = ith asset

L_J = jth liability

α_1 = Net fixed income that is not dependent on assets and liabilities

e_{lt} = Stochastic term

α_{2i} = Marginal rates of return on assets

a_{3j} = marginal costs of liabilities.

Hester and Zoellner (1966) said that the variables of the equation must be divided by the average total of the bank's assets (TA_{bt}) so that errors in the estimate inefficiency is avoided. Thus, the SCA model (1) to be estimated is as follows:

$$Y_{bt} / A_{bt} = \alpha_{1_\alpha} / A_{bt} + \sum \alpha_{2i} A_{ibt} / TA_{bt} + \sum \alpha_{3j} L_{jbt} / TA_{bt} + u_{bt} \quad \ldots\ldots\ldots\ldots (2)$$

The numbers of factors in a significantly affects a banks' earnings and cost in relation to assets and liabilities. However, if these factors are excluded in the model; the regression result becomes unreliable and Inco-efficiently biased. Traditional SCA model was expanded by Kwast and Rose (1982) by adding the market structure and macro economic variables. Kwast and Rose (1982) found no evidence of the differential return and cost on the different categories of assets and liabilities existing between a high profit making bank and a low profit making bank. The modified model was equation (3).

$$Y_{bt} / A_{bt} = \alpha_{1_\alpha} / A_{bt} + \sum \alpha_{2i} A_{ibt} / TA_{bt} + \sum \alpha_{3j} L_{jbt} / TA_{bt} + \sum \alpha_4 H_t + \sum \alpha_5 M_{ft} + u_{bt}$$

H_t = Market structure & F_t = Inflation

5.3 The Modified Model

The Model traditional statistical cost model presumes that banks are faced with the same interest rate on different asset and liability items the interbank variation portfolio mix decodes a difference in portfolio composition of different banks. However, management performance alone is not responsible for differences in bank profitability (John, 1968).

A modified SCA model is applied to test some explanatory variables to understand if private sector banks are better than public sector banks in terms of earning profits in the Libyan banking sector. This research divided Libyan commercial banks into public and private banks, to investigate profitability differences between Libyan commercial banks with different ownership structures. This research also divided Libyan commercial banks into those with high profits and with low profits, depended on their operating profits. To the best of the researcher's knowledge, this is the first research to have investigated profitability in Libyan commercial bank in this way. In fact, a number of factors may affect profits. If these factors are not included in the model, regression results will be unreliable and coefficients will be biased. Some authors (Hester and Zoellner, 1966; Vasiliou, 1996; and Kosmidou et al. 2004;) did not incorporate macroeconomic and industry-specific variables, or both relating to each other in their models as independent variables. However, several authors (Kwast and Rose, 1982; Asiri 2007; Sayeed and Hoque 2008) incorporated some variables which have an influence on bank profits, such as macroeconomic factors (e.g. inflation) and market structure. All of the authors mentioned above did not investigate the impact of monetary policy on banks' profits. The modified model in this research used, in addition to the impact of assets and liabilities management on profits, other factors such as: industry specific variables; bank specific variables; and macroeconomic conditions including monetary policy, which are thought to have an influence on the profitability of bank portfolios in Libyan commercial banks.

It is anticipated that the current research will provide innovative evidence as to wherever it is necessary to differentiate the SCA model for developed and developing economies. This research also used time as an independent variable. So, a set of time-dependent binary variables (T) was introduced into equation 5. Each binary variable represents a given section of observation, such as that concerning the global financial crisis (before and during the financial crisis). Several authors have used time as an independent variable in their studies, to find the relationship between time and bank profitability (John, 1969; Kwast and Rose, 1982). The exclusion of relevant influences results in an estimation that may more or less lead to a biased coefficient estimate. An expanded model is adopted in this research as a means of accounting for these factors. The linear equation (Equation 4) is a method of describing the variation of a bank's income.

$$Y_{bt} = \alpha_{bt} + \sum \beta_k X_{it}^k + u_{bt}$$

…….....…….. (4)

Where y is operating profits and also profits after bank taxes, i_{bt} at time t, with i = 1… t, α is a constant term, X_{it}^K are K explanatory variables and where the stochastic term $u_{bt} = e_{bt} / TA_{bt}$

As discussed above, the explanatory variables are grouped into assets and liabilities management, bank-specific variables, industry-specific variables and macroeconomic variables.

$$Y_{bt} = \alpha_{1_\alpha} + \sum \beta_f A_{it}^f \sum \beta_j L_{it}^j + \sum \beta_l X_{it}^l + \sum \beta_m X_{it}^m + \sum \beta_n X_{it}^n + u_{bt}$$

..... (5)

The general specification of model (5) with the $X_{it}s$ separated into these four groups is:

$Y_1 = \alpha_{1_\alpha} + \sum \beta_f A_{it}^f \sum \beta_j L_{it}^j + u_{bt}$ …… (Assets and Liabilities management)

$Y_2 = \alpha_{2_\alpha} + \sum \beta_l X_{it}^l + u_{bt}$ …… (Bank- specific)

$Y_3 = \alpha_{3_\alpha} + \sum \beta_m X_{it}^m + u_{bt}$ …….. (Industry- specific)

$Y_4 = \alpha_{4_\alpha} + \sum \beta_n X_{it}^n + u_{bt}$ ……. (Macroeconomic variables)

Commercial banks in the Libyan banking sector have wide variations in their business volume. All the variables of equation 4 (assets and liabilities) are divided by a bank's average total asset (A_{bt}) following such authors as Hester and Zoellner (1966) and Kosmidou et al. (2004). Thus, equation 6 takes the form of:

$$Y_{bt} = \alpha_{1_\alpha} / TA_{bt} + \sum \beta_f A_{it}^f / TA_{bt} + \sum \beta_j L_{it}^j / TA_{bt} + \sum \beta_l X_{it}^l / TA_{bt} + \sum \beta_m X_{it}^m / TA$$

Table 5.1.describes variation used in this analysis. One main asset and two main liabilities of the balance sheet of Libyan commercial banks is estimated in rate difference by using the model equation of 5, i.e. 5bank-specific variables, industrial-specific variables, and macroeconomic variable. The model Equation (5) will estimate the different rates of return for the independent variables of Table (5.1) for the public bank, the private banks and two (2) high profit making banks/two low profit making banks. However, distinguishing between the high profit making banks form the low profit making banks may not be easy but distinguishing the public banks form the private banks will be easy. For the course of the second estimation, the 360 degree observation will be split into two group's performance measured by the operating profit divided by the average total assets comparing profits with the industrial average. Observations with higher values than that of the industrial average were classified in the first group, while observers with lower value were classified in the second group.

The first group incorporates only five banks as high-profit banks under two return measures while the second group incorporates only eleven as low profit banks under two measures. Thus, the adoption of these measurements is to determine that, is the greatest variation in terms of earnings profitability between the examples of high profit making banks and low profit making banks. These results tend to facilitate the use of this model in comparing the profitability of the two bank groups.

Table 5.1: The independents and dependent variables used in equation

variables	Description	variables	Measure items	Expected effect	Symbols
Dependent variables	Profits	1- Operating profits	Net current operating income		Y
Independent variables	Items of balance sheet	1- Loans 2- Demand deposits 3- Time deposits			A1 L 1 L2
	Bank-specific variables	4- Bank capital 5- Liquidity risk 6- Credit risk 7- Size bank 8- Market share 9- Ownership	Equity / assets Liquid assets / Deposits Loans / Total assets ln (real assets) and ln (real assets) ^{2} Market share (in terms of assets) of individual banks A dummy variable 0 for privately-owned banks, and 1 for state-banks	positive negative negative positive Positive positive	BC LR CR S MK OS
	Bank-industry variables	10- Development of the banking sector 11- Concentration	Total assets of the deposit money banks divided by GDP Herfmdahl Index of Market Concentration	positive positive	ASSGDP H-H
	Macroeconomic variables	12- Economic activity 13- Inflation 14- Monetary policy 15- Time	Growth rate of per capita income of Libya. Current period inflation rate (consumer prices) Growth rate of Libya Money supply & statutory liquidity ratio & cash reserve ratio Financial crisis: dummy variable 0 for (1997 –2006), and 1 for (2007 -2008).	Positive Positive Positive Negative	EA INF MP FN

The sample used in this research involves 16 commercial banks, both public and private, operating in Libya between 1997- 2008. In research, data was collected from analysing the balance sheets and income statements of the end of the year over the period between 1997- 2008 for each bank. Libyan commercial banks are listed in Table 5.2; which is based on the total size of assets. The first four banks in the table represent the public banks, while the rest of the twelve (12) banks are the private banks. The 12 private banks are small; in terms of their assets when compared with the four (4) public banks. This research, conducts one different regression analysis for each set of banks by assuming one income measures as dependent variables: (1) operating profits.

Table 5.2: The listing of Libyan commercial banks

NO	Name bank	Total assets	percentage
1	Al. Jomhria Bank	27,892,066	39.04%
2	Sahara Bank	19,341,108	27.07%
3	National Bank	11,644,774	16.30%
4	Al.Wahda Bank	6,030,560	8.44%
5	Commerce and Development Bank	2,195,850	3.07%
6	National Banking Corporation	955,871	1.34%
7	Al. waha Bank	925,607	1.30%
8	Amain Bank	753,083	1.05%
9	Alejma'a Bank	626,674	0.88%
10	First Libyan Gulf	270,747	0.38%
11	Al. wafa Bank	208,641	0.29%
12	Al. medal Bank	183,943	0.26%
13	El Matahad Bank	180,478	0.25%
14	Sraya of Commerce and investment	108,196	0.15%
15	Commerce Arabic	103,359	0.14%
16	Shof Engeal Bank	26,408	0.04%
Total		71,447,365	100.00%

*** Resource: Central Bank of Libya, 2010**

The research excluded profits before and after taxes, because the Internal Revenue Service in Libya does not recognise the composition of allocations in Libyan commercial banks, although allocations for commercial banks were specified by the Internal Revenue Service. The operating profit in Libyan commercial banks is derived by calculating [interest received - interest paid + the net fee + income commission + net dealing income + other operating incomes]. One the one hand, Libyan commercial banks earn revenues from different sources; most banks are interested in income, service fees and commissions from assets, and income derived from liabilities. On the other hand, the cost of Libyan commercial banks is derived from mostly from banking assets and liabilities.

These expenses usually include deposits, other liabilities and administrative expenses. For example, when Hester and Zoellner (1966) examined the relationship between bank profits and assets and liabilities management, they expected the most stable relationship to be with portfolio variables. They used three different measures of profit: (1) profit before taxes, (2) profit after taxes, (3) and operating profit; and Kwast and Rose (1982) also used three different of profits as dependent variables to examine the relationship between bank profitability and two dimensions of operating performance: pricing, and operating efficiency.

On the other hand, Sayeed and Hoque (2008) used two different regressions for each set of banks by assuming two income measures as dependent variables: (1) total operating income, (2) and net operating income; and they did not use net income after tax as a dependent variable as tax rates are fixed by the government from time to time and are not influenced by assets and liabilities management.

Vasiliou (1996) in his research utilises bank income before income taxes as a dependent variable. In the previous studies, most of the assets and liabilities were not included as independent variables, the reason being because of the balance sheet identity. If all the assets and liabilities had being included, the outcome would have being a perfect linearity within the model, i.e. the reason why cash was excluded is because the expected rate of cash return is zero, while equity was excluded because, the cost of equity is not directly reflected in the net earnings of the banks (Hester and Zoellner, 1966). Some research paper have removed completely cash and fixed assets in terms of assets and also removed equity capital in terms of liabilities, i.e. Sayeed and Hoque (2008) and Kwast and Rose (1982). In contrast, Vasiliou (1996) included cash and buildings and other fixed assets as independent variables, but he omitted equity-capital. On the other hand Kosmidou et al. (2004) used fixed assets as independent variables, but did not use the bank's equity, since it can be assumed that its rate of cost is zero.

This study's modified model will exclude non-productive assets such as cash, buildings and equipment on the assets side; and 'equity' will be excluded due to fact that its expected rate of cost is zero on the liabilities side.

5.4 Factors affecting banks' profitability

Based on the studies mentioned above, this research attempts to explore the profitability of Libyan commercial banks. Firstly, three items of balance sheet (assets and liabilities management) are used as internal determinants of profitability. Secondly, six variables capturing bank characteristics are also used as internal determinants of profitability. These are bank size, ownership, market share, credit risk, capital risk and liquidity risk. Thirdly, two industry-specific variables are used as external determinants of profitability. These are concentration and banking reform system. Finally, five macroeconomic variables are used as external determinants of bank profitability. These are inflation, Libyan banking regulation (monetary policy), the business cycle, and dummy variable as proxies of the global financial crisis.

Regarding hypotheses, Black (1993, p. 6) reported that: "it is difficult to believe that a researcher would engage in a study when he or she does not have some expectation of the outcome... Hypotheses help fix the direction of a study and are a more formal way of expressing the research question". Rudestam and Newton (2001) stated that research can contain both questions and hypotheses. The researcher can use the research questions as more general investigatory themes, which are then followed by specific hypotheses that make predictions in a testable form. In the same vein, Ryan et al. (2007) stated that in the domain of accounting and finance, the majority of empirical research involves the testing of a statistical hypothesis or set hypotheses, in order to ensure that all the questions of a piece of research are answered.

In order to create the best direction, this research also depends on hypotheses. Consequently, in order to achieve the objectives of this research and also due to the nature of this research, several hypotheses have been created from the literature review.

5.4.1 Management of the assets and liabilities

The composition and management of the assets and liabilities in Libyan commercial banks reconcile the elements of risk and return, which forms the basis for investment decisions. An investment portfolio is a variety of securities; the composition in itself is a matter of how to choose these securities constituting the investment portfolio to achieve the overall objective of the portfolio. Where securities have different returns, risks will be different. According to the financial base, a high return means high risks. If the expected return is high, the significant risks associated with this revenue will also be large, and vice versa. The greater the perceived degree of risk of an investment, the greater the rate of return required to compensate for those risks. Consequently, the hypothesis relating to bank profitability is: Hl: There is a positive relationship between loans and the portfolio profits of Libyan commercial banks. The second hypothesis relating to bank profitability is: H2: There is a negative relationship between demand deposits and the portfolio profits of Libyan commercial banks. The third hypothesis relating to bank profitability is: H3: There is a negative relationship between term deposits and the portfolio profits of Libyan commercial banks.

5.4.2 Bank-specific profitability determinants

5.4.2.1 Bank Capital

Bank capital is divided into two kinds. First, there is capital paid by share-holders in advance (paid-up share capital). This is a narrow conception of capital and allows the share-holders to have the benefit of all future bank earnings.

Secondly, there is the situation where owners of the bank support the business of the bank using the amount of funds available.

This is a wider conception of capital (Athanasoglou et al., 2005). The relationship between profitability and equity is perceived as being positive, which means the cost of capital decreases by an increase in equity (Molyneux, 1993). Furthermore, Berger (1995b) found an interaction between profits and capital, meaning that profit increases with the growth of capital. The majority of studies concerning bank profitability have used capital ratios as one of the determinants of bank profitability (e.g. Bourke, 1989; Keeley and Furlong, 1990; Molyneux and Thornton; 1992; Berger, 1994; Berger, 1995b; Demirgüç-Kunt and Huizinga, 1999; Naceur, 2003; Goddard et al., 2004; and Kwan and Eisenbeis, 2005; Athanasoglou, et al, 2005b). These researchers were found a positive relationship between the bank capital and profitability. The mathematical equation for bank capital is calculated by using the ratio of {equity to total assets} and this calculation explains how much a banks assts value decrease by before the position of the banks depositors and creditors becomes jeopardized. This ratio is described as "bank capital = equity/total assets".

To examine this relationship between bank profitability and bank size in the Libyan banking sector, this research is guided by the sources in the literature mentioned above. To assess the impact of capital on the profitability of the portfolios of Libyan commercial banks; the ratio of equity to total assets is used. Consequently, according to the above, the expectation is for a positive relationship. Hence, the hypothesis relating to the firm profitability is: H4: There is a positive relationship between bank capital and the portfolio profits in Libyan commercial banks.

5.4.2.2 Bank size

Previous research has generated mixed results in terms of the size of banks and their profitability. Smirlock (1985) found that the relationship between bank profitability and a growing bank is significantly positive. Eichengreen and Gibson (2001) supported this, but within certain limits. In contrast, Gibson found the relationship between bank size and profitability to be significantly negative.

The difference in profitability between small and large banks is largely due to outputs and production technologies (Boyd and Runkle (1993), while Kwan and Eisenbeis (2005) also indicated that the size of a bank is an important factor affecting bank profitability. Clarke et al., (1984) asserted that large banks are more profitable and efficient than smaller ones, due to superior efficiency; similarly Baumol (1959) stressed that large banks can benefit from economies of scale. But Berger et al., (1987) stated that an increase in banking firm size achieves little in the way of cost savings. In this context, Athanasoglou et al., (2005) suggested that this may be due to bureaucratic reasons; large banks could face scale inefficiencies. Given that the relationship between the size of a bank and bank profitability is unclear the size-profitability relationship may be expected to be non-linear.

In order to take this aspect into account, the possible non-linear relationship between the real assets of a bank (logarithm) and the square of these assets were used as a measurement of bank size and profitability respectively. Consequently, the hypothesis relating to the firm profitability is: H5: There is a positive relationship between bank size and the portfolio profits of Libyan commercial banks.

5.4.2.3 Credit Risk

In terms of loans to total assets, credit risk can be calculated by adopting the ratio. This calculation measures the risk of the interest or principal on the loans that may be paid to the banks. “Medium loan/total assets” is recommended by Fraser and Fraser (1991).

While, Duca and McLaughlin (1990) indicated that bank profitability was affected by variations in credit risk. In addition, they stated that lower bank profitability was related to increased exposure to the risk of credit. The Performance of institutions being negatively affected by health 66 of a banks' portfolio for loan; because of changes in the credit risk is noted by Cooper et al (2003). A negative relationship between a bank's profitability and credit risk was also found by Miller and Nouler (1997). To examine the relationship between bank profitability and credit risk in the banking sector in several research studies (Wong, 1997; Ben-Khedhiri et al. 2008) using the ratio of total loans to total assets as a measurement of credit risk, the study was informed by the authors above.

Several researchers have used other measures such as the ratio of loans to deposits and short-term funding, the loan-loss provisions to loans ratio, loans/deposits and provisions/assets (Athanasoglou et al, 2005). According to "standard asset pricing", a positive association in Libyan commercial banks between profitability and credit risk is expected. Consequently, the hypothesis relating to the firm profitability is: H6: There is a negative relationship between credit risk and the portfolio profits of Libyan commercial banks.

5.4.2.4 Liquidity risk

Liquidity risk as defined by Demirgüç-Kunt and Huizinga (1999) as the ratio of customers' short term funding to total assets. The largest profits of banks come from the loans market, lending to firms and households, rather than coming from any other assets of the bank such as government bonds or securities. But these loans are high risk. In an empirical work, Miller and Noulas (1997) found several financial institutions having a lower profitability due to factors such as a high accumulation of unpaid loans and high-risk loans.

Bourke (1989) stated that the relationship between bank profitability and level of liquidity is positive and significant. On the other hand, other researchers such as Molyneux and Thornton (1992) found an opposite result. To examine this relationship between bank profitability and liquidity risk in the Libyan banking sector, the researcher applied the following ratio: "Liquidity Risk = Liquid assets / Deposits". It is expected that the higher the ratio, the lower the risk of liquidity and the lower the opportunity for profit. The reason for possible low profit is that banks forfeit investing into long-term securities by providing loans. Consequently, the hypothesis relating to firm profitability is: H7: There is a positive relationship between liquidity risk and the portfolio profits of Libyan commercial banks.

5.4.2.5 Market share

Fries (2002) suggested that a reduction in the margins of a bank's loan and deposit activities is affected by a high market share, because of high costs. Market share is measured by the ratio of individual bank's loans to the net domestic credit of the country in study by Flamini et al. (2009). However, other authors have used the ratio of the total assets of individual banks to the total assets of all banks to measure market share, such as Athanasoglou et al. (2005). In this study, the market share in Libyan commercial banks is measured in terms of individual bank's loans to the net domestic credit of the country, and market share in Libyan commercial banks is assumed to have either a positive or a negative impact. Consequently, the hypothesis relating to the firm profitability is: H8: There is a positive relationship between market share and the portfolio profits of Libyan commercial banks.

5.4.2.6 Ownership

The literature review of this research, different academics has considered types of ownerships to be an essential factor in determining a bank's profitability.

In is context, several researchers (Short, 1979; La Porta et al. 2002a; Barth et al., 2004; Micco et al., 2004; and Sapienza, 2004) points out that, the banks owned by the state are far less profitable than banks that are privately owned. Private banks are much more profitable than state owned banks. Researchers suggested that the reason for the low profitability of state-owned banks was their pursuit of other objectives such as a social mandate, rather than maximizing their profits (Micco et al., 2004; Athanasoglou et al., 2005).

To examine this relationship between bank profitability and ownership in the Libyan banking sector, the study was guided by the aforementioned literature, and includes the ownership type as one variable. In Libya, it was not until l996 that private banks were allowed, although even after their introduction the market share of public commercial banks was still high. The current study uses a dummy variable 0 for privately-owned banks, and a dummy variable 1 for state-owned banks. The former is defined as those banks in which more than 51% of total paid-up share capital is owned by Libyan individuals; while the latter are those in which less than 51% of total paid-up share capital is owned by individuals. Consequently, the hypothesis relating to the firm profitability is: H9: There is a positive relationship between Ownership and the portfolio profits of Libyan commercial banks.

5.4.3 Industry-specific

Commercial banks realize a return on their deposits and capital by investing these funds in assets. The high profit rate on demand deposits is to a large extent the result of the prohibition against the payment of interest on these deposits. The relatively low marginal rate of return on bank capital indicates that regulation induces banks to issue capital beyond the strict profit maximizing level (Richaed, 1971). There are several industry-specific factors affecting banks' profitability.

5.4.3.1 Concentration

Berger (1995a) suggested that increasing bank concentration is caused by managerial efficiency. Molyneux and Thornton (1992) and Bourke (1989) stated that monopolistic profits of banks are also created by managerial efficiency. This means there may be a positive relationship between the concentration and profitability of banks. Athanasoglou's (2005) research showed that the South East European banking industry changes frequently. These cause a change in the composition of the banking sector and the macro-economic environment, which has a direct impact on the aggregate performance of the banking sector. In the current research the banking concentration of Libyan commercial banks is measured by the bank's assets in the three largest banks as a proportion of the total bank assets in Libya. Consequently, the hypothesis relating to the firm profitability is H10: There is a positive relationship between concentration and the portfolio profits of Libyan commercial banks.

5.4.3.2 Measuring the development of the banking sector

Many studies have shown that, national development in terms of the finances of banks in general have a significant impact on the way banks perform. Demirguc-Kunt (2000) showed the difference between banks that have well developed financial system from the banks with underdeveloped system. Demirguc-Kunt (2000) showed points out that, when a bank's financial system is underdeveloped, the bank experiences a significantly high level of bank profit and margin. But in a situation where the financial system is well developed, then there is no significant difference in the bank's profit or margin (this is between the banks based and market based systems). Athanasoglou (2005) notes that the increased levels of the finance reform are closely related to the general economic growth in accordance with the structures of the credit institutions' aggregated balance sheets, which are determined by the profits made by banks.

On contrast, Fotios and Kosmidou (2007) found the development of banks, i.e. foreign banks and domestic banks are both related on the average with assets on return. Results from this study concerning the ratio of the total assets of the money deposited in the bank is divided by the GDP, which is consistent with the finding of Demirguc-Kunt and Huizinga (1999), they noted that some countries that have large banking assets tend to constitute a significantly large proportion of the GDP, while in the reverse, banks with smaller margins and assets are less profitable. Fotios and Kosmidou (2007) measured the development of the banking industry, as a means of determining the ratio of the total assets of the money deposited in the bank divided by GDP. This depicts the total level of development of the banking industry, and also it measure's the importance of a bank's financial capacity in the current economy.

To examine this relationship between bank profitability and the development of the Libyan banking sector, the study follows the measurement used by Fotios and Kosmidou (2007). Consequently, the hypothesis relating to the firm profitability is: H11: There is a positive relationship between the development of the banking sector and the portfolio profits of Libyan commercial banks.

5.4.4 Macroeconomic variables

Banks may not be able to maintain the same level of profit, in the light of changes in the environment of the macro economy, unless they are capable of adjusting and responding rapidly to those changes. As discussed in the literature, many macroeconomic variables have a significant impact on banking performance.

However, there are several researchers who have indicated that the impact of the macroeconomic environment is limited on net interest margins (Al-Haschimi, 2007; Chirwa and Mlachila, 2004; Beck and Hesse, 2006).

5.4.4.1 Inflation

A is a widely used proxy to ensure the effectiveness and efficiency of the macroeconomic environment when a bank's profits are inflated. Revell (1979) suggested that the strength of the influence of inflation on profitability was directly related to the difference in the increase of this factor compared with the increase in bank wages and operating expenses. Athanasoglou et al. (2005) suggested that the profitability of a bank is affected more by inflation than by decreased costs of the bank, because bank clients do not anticipate future inflation. Several researchers who have studied bank profitability have found that inflation has a positive relationship with bank profitability (Bourke, 1989; Molyneux and Thornton, 1992; Athanasoglou et al., 2005). Inflation may affect banks' profits, as a result of an increase in savings by their depositors and at the same time a decreasing demand for credit.

As can be seen from the above literature review, the relationship between the expected inflation and the long-term interest rates, which includes the inflation expectations and the profits made by banks is quite unclear. Differences between the years which are under consideration in the research in Libya, and the average value of the macroeconomic variables are significant. Real per capita income (RGC) and inflation (INF) were used to understand how the Libyan macroeconomic environment affects commercial banks. The Libyan average inflation rate was much higher in more recent years when compared with the early years of the research period, for example, the inflation rate in 2008 (12%) was much lower compared with 1997 (2%). When an inflation rate is fully anticipated, the adjustments of bank interest rates induce an increase in profits. On the other hand, the increasing costs of banks are caused by not adjusting interest rates, as a result of an unexpected change in the inflation rate. In order to control inflation, which is one of the macroeconomic risks on bank profitability, the Libyan current period consumer price index (CPI) growth is the rate used to measure inflation.

Inflation rates usually have good effects on the profitability of a bank. Banks should monitor the movements of inflation, and also other variables which are related, in other to avoid multiple effects. Consequently, the hypothesis relating to firm profitability is: H12: There is a positive relationship between inflation and the portfolio profits of Libyan commercial banks.

5.4.4.2 The business cycle and economic activity

Bikker and Hu (2002) and Demirguc-Kunt and Huizinga (2000) noted some similarities between a bank's profitability and the business cycle. To determine the relationship between profitability and business cycle, some academic researchers have adopted some macroeconomic variables, i.e. unemployment rate and the interest rate differential were used by Bikker and Hu (2002). On the other hand, GNP per capita and the annual growth rate of GDP were used by Demirguc-Kunt and Huizinga (2000). The relationship between the business cycle and bank profitability is positive; this was found by some researchers (Bikker and Hu, 2002; and Demirgüç-Kunt and Huizinga, 1998). Also Athanasoglou et al., (2005) found a positive correlation between the business cycle and bank profitability in the Greek banking sector. This research explores the relationship between a bank's profit and the business cycle. Some reasons are stated for the banking profits being pro-cyclical, i.e. periods of economic recession affect banks' lending, as a result of increasing uncertainty surrounding investment risk. Bank costs and profits are affected by deterioration in the quality of loans. By using bank-specific variables which are related to bank profitability and also in the absence of a business cycle variable, a business cycle variable can be captured and its impact on bank profitability can be felt. Secondly, demand for credit can strengthen immensely in an economic boom, with interest margin widening. This in turn makes revenue increase faster than cost; this eventually leads to an increase in profit. As can be seen in the Libyan business cycle, the output gap is such that an increase indicates a boom.

It is expected that the demand for credit increases during a boom. Consequently this is likely to increase the profits of banks. To examine this relationship between bank profitability and the business cycle and economic activity in the Libyan banking sector, the study follows techniques such as those stated in the literature, for example Flamini et al., (2009) and Athanasoglou et al., (2005). Thus, to measure the impact of the business cycle on the profitability of the portfolios of Libyan commercial banks, the Libyan GDP is used, and the expectation is of a positive relationship. On the other hand, this study used Libyan real per capita income to measure economy activity and its impact on bank profitability, and expectations were that it would be a positive one. Consequently, the hypothesis relating to the firm profitability is: H13: There is a positive relationship between economy activity and the portfolio profits of Libyan commercial banks.

5.4.4.3 Time effects

John (1969) tested some significant variables include total deposit size, regional geographic location, and changes in the general environment (time effects). Time effects are the results of differences in the general economic environment, represented by changes over time. He indicated that the profitability criterion changed significantly over the time period studied. However, the presence of significant time differences on operating relationships was less prevalent than for the other variables studied. Kwast and Rose (1982) used statistical cost accounting techniques to examine the relationship between bank profitability and two dimensions of operating performance pricing and operating efficiency. Also they introduced a set of time-dependent binary variables as independent variables; each binary variable represented a given year of observation. Their study focused on large banks, comparing a sample of relatively profitable banks against a matched group of much less profitable banks over the period 1970-1977.

To examine this relationship between bank profitability and time effects on the Libyan banking sector, the study follows a method stated in the literature, such as by Fotios and Kosmidou (2007). The period investigated in this research is 1997 to 2008. Dummy variables are used for the global financial crisis, which is divided into two sections. The study used a dummy variable 0 for before the financial crisis (1997–2006) and dummy variable 1 for during the financial crisis (2007–2008). This was done to understand the significant time effects on the values of the periods' operating ratios, then to understand the relationship between the global financial crisis and bank profitability in Libyan commercial banks. Consequently, the hypothesis relating to the firm profitability is: H14: There is a negative relationship between the global financial crisis and the portfolio profits of Libyan commercial banks.

5.4.5 Libyan banking regulation (Monetary policy)

In this section, an attempt is made to examine the impact of Libyan monetary policy on the profits of Libyan commercial banks. It has been generally observed that when the discount rate goes down (i.e. expansionary monetary policy), the change in the Central Bank discount rate leads to a change in the deposit rate greater than the change in the lending rate, which results in higher bank profits. However, in the case of a higher discount rate (restrictive monetary policy), the impact on the deposit rate is higher than that on the lending rate, which results in lower bank profits. To examine the relationship between bank profitability in Libyan commercial banks and Libyan monetary policy, the measures in the literature above will be followed (for example in Bernanke and Blinder, 1992). Bank profitability is affected by monetary policy, but as mentioned in the literature of this research, despite extensive investigation no current studies have been located that look at bank portfolios using monetary policy as a variable in the SCA model. The goal is to have a better understanding of the movements of Libyan commercial bank profits in response to changes in the Central Bank of Libya's

monetary policy. The effect of Libyan monetary policy on bank profits is measured by money supply.

It is expected that the profitability of Libyan commercial banks is explained by both money supply and money base (Libyan monetary policy). In the present research, the bank portfolio behaviour of Libyan commercial banks was studied from 1997 to 2008. The financial controls in this period, such as ratios of variable reserve, were significant restraints on the portfolios of commercial banks:

5.4.5.1 Variable cash reserve ratio

The adjustment of reserve requirements has an impact on the investment capacity of deposits, and volume derivatives, the result of which may be used to finance new investments. It is therefore expected that the Central Bank will increase the reserve requirements percentage during inflationary periods, and that this will lead to a reduction in the investment capacity available to the banks. However, this may compel some of them to liquidate a part of their investment to keep sufficient liquidity to face increases in requirement. This leads to a contraction of money in circulation. The reverse case also applies. Every commercial bank must maintain, according to the regulation set by the central bank of Libya and without interest, the required monetary reserve corresponding to its deposit liabilities (demand deposits, time and savings deposits). These reserves must be paid in Libyan currency but, in a situation where by the central bank of Libya permits another form of assets then it will be accepted. The central bank of Libya has used this as an instrument of policy, and it has a disparity of between 10% and 25 % over the period 1951– 2009. The central bank of Libya may without notice require banks to deposit reserves of any type of liability at a rate that exceeds the limit. Thus, the hypothesis relating to the firms profitability is: H15: There is a negative relationship between the Cash Reserve Ratio and the portfolio profits of Libyan commercial banks.

5.4.5.2 Variable Statutory Liquidity Ratio

Banking law in Libya also stated that commercial banks must maintain a certain proportion of their liquidity, such as cash, as required by the Central Bank of Libya. The liquidity ratio has had a disparity between 20% and 15 % over the period 1951–2009 (Law of banks, 2005). Consequently, the hypothesis relating to firm profitability is: H16: There is a negative relationship between the Statutory Liquidity Ratio and the portfolio profits of Libyan commercial banks.

5.5 Summary

The first part of this chapter reviewed the relevant literature related to the Statistical Cost Accounting model, this model assumes that assets and liabilities have a distinct attributes than cost; and that the knowledge that is possessed by a bank's assets and liabilities makes a composition that allows for the forecasting of its profits. Finally, the relationship between earnings performance and the structure of a bank's balance sheets. So, the researcher modified a model which was previously used, to assess the impact of assets and liabilities management on profits, together with other factors such as; industry specific variables, bank specific variables and macroeconomic conditions including monetary policy, which are thought to have an influence on the profitability of bank portfolios in Libyan commercial banks. In the second part, the researcher introduced several factors which he believed have an influence on bank profits. The researcher divided the framework into four sections, firstly, assets and liabilities management, secondly, bank-specific profitability determinants; thirdly, industry-specific variables used as external determinants of profitability, and finally macroeconomic variables. This allows the researcher to compare with previous studies, in order to attempt to explore factors which have an influence on the profitability of Libyan commercial banks.

Table 5.3: The listing of the hypotheses research developed

Number of hypothesis	Explanation
1	There is a positive relationship between loans and the portfolio profits of Libyan commercial banks.
2	There is a negative relationship between demand deposits and the portfolio profits of Libyan commercial banks.
3	There is a negative relationship between term deposits and the portfolio profits of Libyan commercial banks.
4	There is a positive relationship between bank capital and the portfolio profits in Libyan commercial banks.
5	There is a positive relationship between bank size and the portfolio profits of Libyan commercial banks.
6	There is a negative relationship between credit risk and the portfolio profits of Libyan commercial banks.
7	There is a positive relationship between liquidity risk and the portfolio profits of Libyan commercial banks.
8	There is a positive relationship between market share and the portfolio profits of Libyan commercial banks.
9	There is a positive relationship between Ownership and the portfolio profits of Libyan commercial banks.
10	There is a positive relationship between concentration and the portfolio profits of Libyan commercial banks.
11	There is a positive relationship between the development of the banking sector and the portfolio profits of Libyan commercial banks.
12	There is a positive relationship between inflation and the portfolio profits of Libyan commercial banks.
13	There is a positive relationship between economy activity and the portfolio profits of Libyan commercial banks.
14	There is a negative relationship between the global financial crisis and the portfolio profits of Libyan commercial banks.
15	There is a negative relationship between the Cash Reserve Ratio and the portfolio profits of Libyan commercial banks.
16	There is a negative relationship between the Statutory Liquidity Ratio and the portfolio profits of Libyan commercial banks.

Chapter six

Research methodology and data collection process

6. Research methodology and qualitative data collection process

6.1 Introduction

Portfolio profits have been chosen as the central phenomenon of this research because of their importance in the activity of the economy. This research takes a scientific realist perspective. It views organizations as social agencies that can be influenced by other social actors. To provide a holistic view of these relationships, a case study strategy is adopted. The method of research employed is that of explanatory survey studies. The research reflects the reality of the banking environment. A qualitative method has been used to collect data as a form of explanatory research in the second part of the research process, in order to gain a deeper understanding of the research objectives. These attempt to explain the reason and the focus of the research by concentrating on understanding the relationship between portfolio profits and their determinants. The wide time-span chosen for the data under investigation was intended to provide an opportunity to gather comprehensive information and to enable small fluctuations to be smoothed and overall trends to be identified.

In addition, this period includes many changes in banking policy, monetary policy and economic policy. A number of authors (Tobin, 1968; Poole, 1968; Fried, 1970; Stein, 1998; Zulverdi, 2007; Altunbas, 2010) have suggested models to examine bank portfolios in terms of their composition and their relation to monetary policy. As the data in the first part of the data analysis is quantitative in nature, the researcher is able to use a regression analysis model in order to determine the correlation between, as well as the weight and direction of the associated variables.

6.2 Research design

Zikmund (1997, p. 40) defined research design as “a master plan specifying the methods and procedures for collecting and analysing the needed information” and as a “framework of the research plan of action”.

Robson (1993, p. 12) emphasises that ‘‘the general principle is that the research strategy or strategies and the methods or techniques employed must be appropriate for the questions you want to answer’’. In the light of this advice, the researcher considered these recommendations in selecting the most appropriate and effective approaches to the collection and analysis of data. Also in the context of research design, Nachmias and Nachmias (1992, p. 77) stated that research design ‘‘guides the investigator in the process of collecting, analysing and interpreting observations. It is a logical model of proof that allows the researcher to draw inference concerning causal relations among the variables under investigation’’. In the same connection, Collis and Hussey (2003) stated that explanatory cases studies are suitable for situations where existing theory is used to understand and explain what is happening. Thus, the research takes a scientific realist perspective (Hussey and Hussey, 1997).

As mentioned within the literature, it is important for the researcher to have a plan or strategy for his/her research, where it is manageable. The researcher took in account the approaches suitable and efficient for the collection of data for this research, to achieve the aims of the research, and also ensure that the data contributed to answering all the questions of the research; thus the researcher had a suitable plan for that, including data collection and analysis (Hussey and Hussey, 1997, and De Vaus, 1996). This is also supported by Field and Morse (1991) who said that the nature of the research questions determines the strategy of research. In this connection, Davies (2007) stated that the strategies of research are merely tools. So the researcher adopted a case study method, to attempt to cover the majority of aspects of this research.

Also Ellram (1996) stated that case studies focus “on holistic situations in real life settings, and tend to have set boundaries of interest, such as an organization, a particular industry, or a particular type of operation”. So, the methodology of the research was drawn from a toolbox of available methods, chosen for their potential to answer the questions posed within the research.

Methods were chosen based principally on the nature of the research, combined with an active consideration of the perspective from which the research was being carried out. As a result of investigations within the literature on methodology and a review of the profits of banks, along with the literature review, a research design was chosen. The design of this research adopts both qualitative and quantitative approaches to the research. The researcher organized the research into four stages. The first stage is the literature review, the second stage is quantitative research, and the third stage is qualitative research, while the fourth stage is data analysis, which is followed by the conclusions of the research.

6.3 Methodology

6.3.1 Introduction

The researcher tried to select the best methodology and methods to answer the research questions, and then achieve their objectives (William, 2006). In this connection, Saunders et al. (2003, p.2) reported that the term methodology indicates ‘‘the theory of how research should be undertaken”. Also Crotty (1998, p.3) defined research methodology as “the strategy, plan of action, processor design lying behind the choice and use of particular methods and linking the choice and of methods to desired outcomes”.

6.3.2 A mixed quantitative and qualitative methodology as the selected approach for this research

Several authors (Johnson and Onwuegbuzic, 2004; Easterby-Smith and Lowe 2006; and Rudestam and Newton, 2000) stated that qualitative research has several advantages, for instance in terms of providing large quantities of data such as words and ideas. However there are also disadvantages; it is difficult to analyse, the process of collecting data is time consuming, it is costly and there are difficulties interpreting the evidence.

On the other hand, several authors (Johnson and Onwuegbuzic, 2004; Easterby-Smith and Lowe 2006; and Patton, 1990) stated that quantitative research also has several advantages, such as neutralising, reducing or eliminating the influence of the researcher on his/her investigation. However, there are also disadvantages. Hence, this research used a mixed research methodology to overcome the disadvantages of both approaches, and to overcome researcher bias (Hussey and Hussy, 1997).

Johnson and Onwuegbuzic (2004, p. 17) reported that the mixed method is "... the class of research where the researcher mixes or combines quantitative and qualitative research techniques methods, approach, concepts or languages into a single study". In order to overcome any problem such as the bias of the researcher or the inability of a single-method to collect and analyse the data of the research, in this context Collis and Hussey (2003) recommended using different research approaches in terms of methods and techniques. Holme and Solvang (1997, p. 91) reported that "Qualitative methods can be seen as a concept for an approach which more or less combines the following five techniques: direct observation, participated observation, informant and respondent interviews, and analysis of sources".

In this context, Bryman (2008, p, 46) defined qualitative research as "an approach to the study of the social world which seeks to describe and analyse the culture and behaviour of humans and their groups from the point of view of those being studied". The researcher wanted to have a wide range of information from his investigation, and as mentioned above the researcher used a case study approach, in this context supported by Ghauri and Grønhaug (2005, p. 119) who state that "Historical review, group discussions and case studies are mostly qualitative research methods. These qualitative research methods use relatively more qualitative techniques, such as conversation and in-depth, unstructured or semi-structured interviews". The quantitative part of this study involved the collection of secondary data. For this purpose, data were collected from the Libyan commercial banks and Libyan Central Bank.

The quantitative research was carried out in order to test the hypotheses of the study derived from the literature review in chapter three and chapter four, and from the development of framework presented in Table 5.1 in chapter five. A further consideration was to have more depth of understanding of the current scenario of the portfolios of commercial banks in Libyan. In this context, quantitative methods, as reported by Patton (1990 p.14) allow "the use of standardized measures so that the varying perspectives and experiences of people can be fit into a limited number of predetermined response categories to which numbers are assigned".

The researcher took into account the fact that each approach has advantages and disadvantages. Due to the fact that each method has a disadvantage, qualitative research was used additionally as a means of gaining access to unquantifiable facts. In order to ensure valid significant reliable results supported with sufficient information and to strengthen the research, the researcher combined quantitative and qualitative approaches in this research. As mentioned previously, this research concentrated on several factors and their impact on bank portfolios in Libyan commercial banks. Thus this research was designed to understand the relationship between these factors and bank portfolios in Libyan commercial banks. Whereas, because of the disadvantages to each approach of research, whether quantitative or qualitative, Denzin and Lincoln, (1994) reported that a qualitative approach allows the researcher to collect more information and to see his research through a wide-angled lens, on the other hand quantitative research does not allow the researcher to understand everything around his/her study. Generally, qualitative research explains provides a wider perspective, in order to allow the researcher to be aware of more information when describing a phenomenon, in this context, Lincoln and Guba (1985, p.120) reported that "If you want people to understand better than they otherwise might, provide them information in the form in which they usually experience it".

Thus, qualitative methodology reflects different viewpoints between people, which allow the researcher to understand more (Marshall and Rossman, 1989). There were two reasons for selecting a qualitative approach as the second methodology for this study. Firstly, there was a complex relationship between portfolio profits and several factors, whether internal or external, in Libyan commercial banks. To understand this relationship, the researcher analysed it by also using a qualitative approach as a method for this research. The second reason was due to the correlation between variables in the first (quantitative) part of the analysis; the analysis excluded several variables such as financial crisis, liquidity risk, cash reserve ratio and statutory liquidity ratio, due to their correlation with other variables. So, to cover these problems several questions were included in the qualitative research part regarding variables which are excluded from the quantitative data analysis. In this vein, Tombs (1995, p.10) reported that ‘‘qualitative research is better placed to view and examine the linkages between events and activities and to explore peoples’ interpretations of the factors, which produce such connections’’. Secondly, as mentioned previously, the researcher is an employee at the Central Bank of Libya; working within the Central Bank of Libya enabled the researcher to employ different methods of data collection, which helped him, as expected, to carry out this task and to build a large database in terms of population.

6.3.3 The data collection method selected for this research

Yin (2003, p. 92) stated that “Overall, interviews are an essential source of case study evidence because most case studies are about human affairs. These human affairs should be reported and interpreted through the eyes of specific interviewees, and well-informed respondents can provide important insights into a situation. They also can provide shortcuts to the prior history of the situation, helping you to identify other relevant sources of evidence”.

Sarantakos (1993) stated that despite these advantages, interviewing is limited by some factors that cannot be overlooked: firstly it involves higher cost and spending more time to conduct the interviews compared to other methods. Secondly, several factors can affect interview process, such as the bias of the researcher or interviewee. Thirdly, it offers less anonymity than other methods since the interviewer may know details such as the identity, residence, type of housing, family conditions and other personal details of the respondent. Fourthly, it is less effective than other methods when sensitive issues are discussed. However, while these drawbacks are reiterated by Kumar (1999), he also states that there are some advantages of using interviews such as: "The interview is more appropriate for complex situations; it is useful for collecting in-depth information; information can be supplemented, and questions can be explained; interview has a wider application". (p. 115).

The research required two methodologies for collecting data. The first stage was the quantitative methodology, as introduced in chapter 5, and the second stage was qualitative methodology, employed in order to collect data at different times or from different sources in the research of a phenomenon (Collis and Hussey, 2003). Due to the importance of qualitative data, the research tried to also use it to understand the determinants of the profitability of portfolios of Libyan commercial banks.

Also the researcher wanted to understand what happened, and the reasons for what happened (Collis and Hussey, 2003), and also to find evidence for what arose out of the literature review. The researcher took into account the importance of the sample size of interviewees, which consisted of 14 participants. All worked in Libyan commercial banks in different positions of responsibility. This research draws on a large number of highly structured interviews to obtain sufficient information from different levels of informants; they were conducted with key participants in the Libyan banking sector (including a number of managers, and also with highly qualified individuals who worked in the banking sector); this allowed the researcher to elicit different views on

social phenomena, to investigate the portfolio behaviour of all the banks, and their profits, due to their importance in the activity of the economy.

6.3.4 The study population and sample selected

Sekaran (2003, p. 256) defines the population as the ‘‘entire group of people, events or things of interest that the researcher wishes to investigate”. In this context, Hussey and Hussey (1997) emphasised that the first step of any researcher is for the researcher is to select the sample of study. Thomas (1993, p.80) points out that ‘‘the top business executives and important people in big companies are both visible and inaccessible.

Table 6.1: Interviews schedules

Code	Position	Name of bank	N. of respondents
	Libyan Central Bank participants		**3**
A1	Manager of Accounting Department	Central Bank	1
A2	Manager of Banking Operation Department	Central Bank	1
B1	Deputy Manager of Department of Banking Supervision	Central Bank	1
	Libyan commercial banks participants		**11**
B2	Deputy Manager of Credit Affairs Department	Al. Jomhria Bank	1
B3	Deputy General Manager of Commercial Bank	Sahara Bank	1
B4	Deputy Manager of Credit Affairs Department	National Bank	1
B5	Deputy Manager Research and Studies Department	Al.Wahda Bank	1
B6	Deputy Manager of Banking Operation Department	Commerce and Development Bank	1
A3	Manager of Accounting Department	Amain Bank	1
A4	Managers of Credit Department of Commercial Bank	Alejma'a Bank	1
A5	Manager of Audit Department of Commercial Bank	North Affric	1
A6	Managers of Banking Operation Department of Commercial Bank	Commerce Arabic	1
B7	Deputy Manager of Banking Operations Department	Al. medal Bank	1
A8	Manager of Accounting Department	El Matahad Bank	1
Total of the Interviewees			**14**

*** A indicates to the respondent as a manager**
*** B indicates to the respondent as a deputy manager**

This situation poses unique challenges for the sociologist in learning about what executives think and do. To go beyond caricature or public relations imagery, researchers must devise creative strategies for getting access and data’’. The researcher conducted interviews with key respondents in Libyan commercial banks and the Libyan Central Bank, firstly with a limited number of managers and secondly with academics

who worked in the same department in the banking sector. The interviews were designed to gain further insight into bank responses to changes of environment.

The researcher conducted interviews with top and middle level respondents, who held positions of responsibility across Libyan commercial banks and the Libyan Central Bank in order to obtain sufficient information and different opinions. Full interview schedules are given in the Table (6.1).

6.3.5 Personal interview arrangement for the qualitative research

Interviewers hold a central place in the research process. They are assigned significant tasks, and failure to fulfil them accurately has serious consequences for the research as a whole. Becker (1989, p. 15) lists the following tasks: "(1) selecting and /or approaching the respondents; (2)arranging the time, data, duration, and conditions of the interview; (3) performing the interview; (4) controlling the interview situation; (5) avoiding bias (6) recording the answers accurately; (7) establishing and maintaining positive relations with the public". As mentioned before, the researcher is also an employee of the Central Bank of Libya (CBL).

The CBL department of training helped the researcher to organise the personal interviews by arranging and contacting the departments of training in Libyan commercial banks. These procedures supported the researcher in terms of time and effort. So, they were very useful intermediaries. The researcher obtained permission from respondents to record their interviews, and the researcher confirmed to the respondents the confidentiality policy of the University of Gloucestershire, and that the interviews would be used for academic study only (Bailey, 1996; May, 1997; Ritchie and Lewis, 2003). The researcher followed several steps in arranging interviews with respondents, conducting each on a one-by-one basis. The respondents were all employees of the CBL or Libyan commercial banks during the period of investigation.

The researcher sent copies of letters of recommendation written by the Libyan embassy in London, the CBL and translated letters from the University of Gloucestershire to each commercial bank. After a week, the researcher received calls from banks. Following this, the researcher started to visit commercial banks to arrange first meetings with respondents. These meetings were intended to introduce the researcher and the importance of the study to Libyan commercial banks, and to determine the time and date location of interview with each respondent.

6.3.6 The selection of interviewees

The role of the researcher is to visit the case 'location' and conduct interviews about the subject of the research (Ryan, 2002). In this situation, all Libyan commercial banks were studied in relation to monetary policy in Libya as enacted by the agencies of the government. The study used both primary and secondary data. The interaction between the several factors (explained in framework in chapter five), and portfolios of the bank was modelled, using a regression approach. Thus, the modelling approach was consistent with previous studies in this field, such as that of Zellner (1962).

The sample size for analysis in this study was all Libyan commercial banks. The reason for choosing all Libyan commercial banks was that they had a closer relationship to several other external factors, which would enable the study to obtain sufficient indicators of portfolio profits. The commercial banks varied in terms of their relative importance such as size of assets, liabilities and gross profit, and the size of depositors and capital to risk-weighted asset ratio. Due to the significance of the interviewer in the research, investigators employ a very systematic process when selecting the interviewer. The criteria usually considered as significant are: (1) honesty, trustworthiness and self-control; (2) intelligence, maturity, and friendliness; (3) sociability and social acceptability; (4) carefulness, conscientiousness, and ability to concentrate; (5) accuracy and dependability; (6) objectivity, and lack of prejudice; (7) adaptability, independence;

and initiative; (8) verbal ability and ability to listen to others carefully; (9) interest in and familiarity with the research topic; (10) ability to work with others in a team of experts (see Bailey, 1982; Becker, 1989; Berger et al., 1989). Interviewing is organised into a number of stages, with each stage including certain tasks. The varying types of interviews are conducted in different ways, but some common steps can be identified in all forms of interviewing: (1) seeking the respondents; (2) Asking the questions and recording answers; (3) field supervision and checks; (4) completion of the interview (Sarantakos, 1993).

Huber and Power (1985, p.174) reported that: "because the units of analysis are so costly to assess in studies of strategy and policy formulation, and because much of the information about a given event must be obtained from a single key informant, it is extremely important that the data collected be as accurate as possible. Consequently, it is crucial that researchers collect their data from the most appropriate person in the organization". The interviews for the research were conducted with key respondents in the Libyan banking sector. Interviews were conducted, firstly, with a limited number of managers. Secondly, the researcher tried to gain further insight into bank responses to monetary policy by interviewing academics who worked in the appropriate departments of the banking sector. These interviews were used to contextualise and add meaning to the quantitative analysis.

As this aspect of the research is qualitative, the exact number of interviews was determined, thus they were conducted with 14 informants. Data collection by interview in Libyan commercial banks took place at the beginning of August 2009. This procedure encountered several problems, such as the fact that all respondents were very busy and it was difficult to arrange a time for the interviews. To overcome these problems, the researcher suggested a timetable for each respondent. In this timetable each respondent determined which time was appropriate and if he wanted to divide the time of the interview, and also the location of the interview.

Achieving this task took about two months (for each day about 8 hours), this time included conducting the interviews and transcribing each interview immediately afterwards. After the researcher received permission from respondents to record their interviews, he used a digital voice-recorder to keep an audio record of the interviews (Ritchie and Lewis, 2003).

6.3.7 Rationale for the selection of personal face-to-face interviews

An interview is one of the most important and effective methods of data collection (Bouma and Atkinson, 1995; Hussey and Hussey, 1997). An interview is defined by Powney and Watts (1987, p.6) as ‘‘ a two person conversation initiated for the specific purpose of obtaining research relevant information and focused by him/her on content specified by research objectives.’’ Also it is ‘‘a purposeful discussion between two or more people’’ (Cannel, 1957, cited in Saunders et al., 2003, p. 245). In this connection, Lundahl and Skärvad, 1999 (cited by Saunders et al., 2003) stated that a personal interview depends on building confidence between the respondent and the researcher.

Sarantakos (1993) reported that interviews have many types, and that each is type is different from the others, in terms of the role of the interviewer, the number of respondents involved in each interview, and the structure and purpose of the interview. Also, several researchers, such as Nachmias and Nachmias (1981), Peterson, (1982), Tull and Hawkins (1990), and Zikmund (2000) have indicated that there are several modes for data collection by interview, e.g. telephone interviews, personal face-to-face interviews and mail, and there are disadvantages and advantages for each one. The researcher compared different methods to select one, as each one has its advantages and disadvantages.

The researcher selected face-to-face interviews as a method for data collection because this type of interview allows the researcher to conduct interviews with the respondents in a variety of situations, whether outdoor or indoor, and also to conduct them with a

range of different respondents, e.g. members of the general public, experts or leaders, members of a specific group. In addition, interviews allow the researcher to investigate subjects both general and specific in nature (Nicholas, 2006). The research selected as the appropriate method that one by which the aim of the interviews could be achieved, which was to collect more information and to answer the research questions.

The use of face-to-face interviews was selected by the researcher according to the above considerations. The experience of the researcher in the banking field allowed him to relate to respondents in a banking ambience, which made it easier to collect more information. Also socially and culturally, people appreciate personal attendance. In addition, the researcher could not conduct the interviews by telephone because, firstly, the interview questions were lengthy, secondly it would have been costly, and finally, the respondents may have misunderstood the questions. Also, the researcher noted that interviews conducted by email are not popular, either in developing and developed countries. Based on the advantages of the semi-structured interview, the researcher decided to follows this method to collect data.

In this context, Raeder (2007) reported that the advantages of semi-structured interviews are: (1) they can be used to compare and analyse responses; (2) no topics are missed; (3) they provide a reduction of interpersonal bias; (4) respondents not constrained by a fixed sentence or question which may not be complete. The disadvantages of semi-structured interviews are: (1) there is some loss of flexibility for interviewee answers; (2) question wording may reduce richness, (3) they are less natural than unstructured interviews; (4) coding responses are still subject to bias; (5) there is a limit to the generalisation they allow.

6.3.8 Piloting the interview guide

In order to have accurate research data and produce new ideas and information, in addition to overcome any shortcomings of the research, the researcher must be able to

avoid any errors. In this context, Borg and Gall (1996) emphasised that pre-testing research data is very important for any research.

The researcher tried to guarantee the validity of his research in terms of the interview questions by asking participants to identify what they regarded as strong or weak questions. This procedure was by achieved by allowing people who had knowledge and experience in this field participate in the pilot study. So, the researcher took some steps to complete the final part of the interview by questioning the comments received from participants. First, the researcher discussed the interview questions with his supervisors both first and second. Secondly, the researcher distributed copies of the interview questions to his colleagues who were studying at different postgraduate levels in different universities in the UK. Thirdly, the researcher distributed three copies of the interview questions guide to his colleagues in his Department within the Central Bank of Libya and other Departments such as the Department of Research (three copies) and the Department of Banking Supervision (three copies) .

In addition, the researcher distributed copies to colleagues who were working in Libyan commercial banks (four copies). Fourthly, the researcher sent a copy of the interview questions to a colleague who was working at the British Arab Commercial Bank in London (and had previously worked at the CBL). The researcher gave the respondents the interview questions, and also informed them of the nature and objectives of the study. In addition to the above, he explained the interview questions to each respondent, because the researcher intended to receive their opinions about the interview question in order to achieve the aim of the research. The research was to design to collect opinions from respondents about the interview questions guided in two ways, firstly personally, secondly by email and telephone. Each respondent spent about 45 minutes for discussion about his comments. It is necessary that the researcher mentions here that there were two students who did not have the ability to discuss the interview questions.

Finally, the researcher discussed the pilot study with his supervisory team, in order to get final opinions before starting to conduct the interviews themselves. In accordance with the literature, the questions of the interview were written in by the English language, then translated into Arabic language, because the majority of respondents of Libya were employees in Libyan commercial banks or the CBL. Therefore, the interview questions were translated from English to Arabic. The researcher tried to guarantee the correctness of translation, taking consideration of contextual equivalence, and applied a back translation technique. He was supported by several translation offices and several faculty members who specialised in linguistics.

6.3.9 Conducting the Interviews

Due to the importance of the research, the researcher adopted semi-structured interviews, in order to obtain sufficient information from informants through in-depth discussion. Potter and Heplurn (2005, p. 300) reported that "Although qualitative interview are treated as relatively easy to perform, they are very hard to do well". The researcher visited Libya twice to collect secondary data as the basis for the second stage of the research, which was quantitative in nature (balance sheets and income statements).

On these occasions, he also arranged interviews with informants for the 3rd, qualitative stage of the research. The second visit was used to conduct interviews with informants. Interviews were conducted with 14 informants (see Table 6-1), all of whom were employees of the CBL or Libyan commercial banks, in different positional levels. The data collection took about four months. Before and during the interviews, the researcher also kept in mind Robson's (1992, p. 232) advice: (1) ''listen more than you speak. Most interviewers talk too much. The interview is not the platform for the interviewer's personal experiences and opinions. (2) Put questions in a straightforward, clear and non-

threatening way. If people are confused or defensive, you will not get the information you seek. (3) Eliminate cues, which lead interviewees to respond in a particular way. Many interviewees seek to please the interviewer by giving correct responses. (4) Enjoy it (or at least look as though you do). Do not give the message that you are bored or scared. Vary you voice and facial expression.''

It is not easy to conduct an interview, especially if the topic is sensitive, but the researcher tired to maintain a balance between time, cost and the need for accurate answers to the questions. Each interview took between two and half hours to three hours, in locations such as informants' offices, hotels, and coffee houses. The greatest problem facing the researcher was how to organise the timetable of interviews with informants, as all informants had responsibility in their banks and thus were extremely busy. To solve this problem, the researcher asked each informant to determine the time and location of interview. In order to manage time and effort more efficiently, the researcher gave informants his mobile telephone details so that they could contact him if they wanted to change the time or location of the interview. Also the researcher took into account common errors that were stated by Berger et al., (1989) such as recording errors, evaluation errors and instruction errors.

6.3.10 Analysis of the research data

In this research, data analysis involved two steps. The first step was to analyse the quantitative survey data for each commercial bank from the CBL and Libyan commercial banks themselves (as discussed in chapter five). The second step was to analyse the qualitative survey semi-structured interview data, which also came from the CBL and Libyan commercial banks. Surveys and experiments are probably the main vehicles of quantitative research, but there are others worthy of a brief mention; firstly, the analysis of previously collected data; secondly structured observation, finally as Beardsworth (1980) indicated, content analysis (Hyman, 1988).

Bernard (1988, cited in Miles and Huberman, 1994, p. 90) argues that descriptive analysis can be defined as ‘‘making complicated things understandable by reducing them to their components parts. The issue is making a clear accounting of the phenomena at hand’’.

To build a basis for analysis of the data of this research the researcher depended on primary data such as professional literature related to portfolio profits. The design of the interviews in this research followed the literature and academic guidelines. In this context, Denzin and Lincoln (1994, p. 4) argued that **“**Qualitative researchers always bring with them their own lenses and conceptual networks. They cannot drop them, for in this case they would not be able to perceive, observe and describe meaningful events any longer-confronted by chaotic, meaningless and fragmented phenomena”. In this connection, previous studies in this area and the experience of the researcher in this field helped the researcher to interpret his findings.

6.3.11 In-depth analysis of the qualitative interview data

The researcher followed analytical procedures as found in the literature (Turner, 1981). Therefore, he transcribed the entire interview with respondents, and classified it according to the structure of the answers. The researcher prepared a data matrix for each respondent under each question. The aim for this process was to help the researcher to compare the answers for each respondent, and also to make a summary of all the answers of the respondents. In order to ensure the accuracy of his work, the researcher sent a copy of the summary of interviews to all respondents in order to receive feedback and any further comments. The result was a consensus from all the respondents on the summary of interviews. Finally, the researcher incorporated the data into the analysis. Several methods of analysis for qualitative data such as policy analysis, phenomenological analysis and content analysis were considered. The main aim of the researcher was to find the best methods to assist in discovering the logical structure of

arguments and explanations noted by the informants of the banks interviewed. Holme and Solvang (1997) stated that there are two method approaches, the first approach is inductive and the second approach is deductive. In this context, Bryman and Bell (2005) stated that there are two types of research strategies, divided into quantitative research strategies and qualitative research strategies. Quantitative research strategies use quantitative measures in the collection and interpretation of data, and normally have a deductive approach, and are used to test theories. On the other hand, the strategy of qualitative data depends on conversation to collect and analyse data, thus it is reported that the inductive approach usually contributes to the emergence of a new theory, with the result that qualitative research is likely to be inductive rather than deductive (Rudestam and Newton, 2001).

A quantitative research method does not collect sufficient data for inductive research; because it does not allow the researcher to be aware of all elements surrounding the data (Denzin and Lincoln, 1994). In view of the above, the researcher took into account the importance of qualitative interviews, which consisted of 14 informants, who all worked in Libyan commercial banks in different positions of responsibility. Thus, this research depended on qualitative interview to ensure that additional information was obtained from different levels of informants; this allowed the researcher to develop different perspectives of the banking environment. Holme and Solvang (1997) stated that there are two approach methods, the first approach is inductive and the second approach is deductive. In this context, if research is exploratory in nature, the inductive coding method can be used, as reported by Nachmias and Nachmias (1996). This is also supported by Lincoln and Guba (1986). So this research followed the authors above in term of analysing qualitative data through using first audio records and second transcripts, and then coding, categorising, and finally identifying the themes of the interviews. In the qualitative literature several authors (Wolcott, 1990; Feldman, 1995; Harris and Watkins, 1998; Shaw, 1999; Blankson and Omar, 2002) consider the

inductive coding method as a reliable method to analyse qualitative data. The inductive approach allows the research to go deeper to understand more information of the determinants of bank portfolios in terms of profit, in order to develop the existing theory in the literature, and to keep the door open for adding new ideas and aspects in this area, as supported by Crane (1997).

6.3.12 Validity and Reliability

Coolican, 1992, p.35 (cited by Collis and Hussey, 2003) stated taht "An effect or test is valid if it demonstrates or measures what the researcher thinks or claims it does". In the same connection, Newman and Benz (1998, p. 66) stated that case study methodology has the potential for increased validity for several reasons "… (1) because multiple data collection techniques are used; (2) validity may be increased by checking the interpretation of information with experts; (3) with case studies there are the generally a variety of data sources; (4) they use a scientific method". Validity, as defined by Saunders et al., (2007, p. 149) is "concerned with whether the findings are really about what they appear to be about". Shadishetal et al. 2002 (cited by Van de Ven, 2007) define validity as "the approximate truth of an inference or knowledge claim of a causal relationship based on evidence that supports that inference as being true or correct". In the same context, Neuman (2000) reported that internal validity is used to make sure that there are no possible errors or alternative explanations with results. Saunders et al. (2003) stated that external validity indicates the applicability of research results to generalisation, and this is supported by Neuman (2000). In this connection, Saunders et al. (2003) reported that research design is very important to improve research quality. The researcher tried to construct an accurate research design, in order to have valid conclusions to his research. To achieve this, the researcher tried to maintain the internal validity of each process at each stage of the research.

In addition to this, the researcher introduced the background of the research in the first five chapters, regarding the interaction between the profits of bank portfolios, and other several factors, as mentioned in chapter five. This allowed the researcher to develop a theoretical framework in chapter five, which reflects the relationship between the independent and dependent variables. In both chapters five and six, the researcher discussed and introduced justification for adopting the research methodology of this research, for both the quantitative and qualitative method. Reliability Saunders et al., (2007, p. 149) stated that the term reliability indicates stability of measurement, also they stated that reliability "refers to the extent which your data collection techniques or analysis procedures will yield consistent findings". At least three types of reliability are considered by social scientists: (1) Stability reliability (2) Representative reliability (3) Equivalence reliability. There are several methods for testing the reliability of an instrument. The most common methods are the following (1) Test-retest method (2) Inter-item test and item-scale test (3) Alternate-from reliability" (Sarantakos, 1993).

As mentioned in chapter five, the research has developed a theoretical framework, in order to increase the body of knowledge on countries with transition economies, so the research highlights this fact; that the financial reform process positively affects banks' profitability and that banking sector reform is a necessary condition for the development and deepening of the sector in developing countries that have similar economies and banking systems. Thus the findings of this research and the theoretical framework can probably be applied in countries with transition economies, which enhance the external validity of this research. As with any researcher looking for reliability in his/her research, the researcher attempted to be consistent at all the stages of the research, the main aim of this was to achieve a high level of reliability in this research; the researcher selected a suitable research design in terms of construct and clarity. By using a database of the annual reports of the Libyan Central Bank and balance sheets and income statements of Libyan commercial banks, and also other reports from other departments

of the Libyan government such as the National Information System, the researcher was to able to cover all the research questions thoroughly.

6.4 Summary

In this chapter the researcher discussed the methodology selected, and he took into account the methods appropriate for this research. Thus, the researcher also employed a qualitative methodology as a method in the second part of this research, and the case study as an appropriate research strategy because this allowed the researcher to go deeper in understanding the banking environment. The researcher also arranged for the qualitative research personal interviews, and applied the technique of semi-structured interviews to collect the principal research data from respondents, also specifically; the researcher selected personal face-to-face meetings to conduct his interviews with respondents to this research.

Chapter seven

Analysis of the quantitative data

7. Analysis of the data of the quantitative research stage

7.1 Introduction

In chapter five the researcher discussed the possible independent variables which may explain the variations of the profits in Libyan commercial banks, and then hypotheses of the research were formulated. This chapter presents the measurements of the dependent and independent variables applied in the quantitative research stage of this research. It explains data collection and the sample set of the research. It also introduces statistical analysis and discusses which model is favoured for use in this study. Hence, the chapter is divided into four sections: first, statistical tools; second, model specification; third, model selection; and finally, results analysis. In this section the panel data model will be analysed using the software system Eviews-6. The random effects model and fixed effects model were selected to study both public banks and private banks, and also both high and low profitability levels of both public and private banks, and in all Libyan commercial banks. Then, the Hausman test was used to select which model was most suitable for this research. Also, this section will examine the hypotheses, which were proposed in chapter five. Thus, a comparison of the impact of the independent variables on the portfolio profits of Libyan commercial banks is presented.

7.2 Data Analysis

7.2.1 Multiple Regression Analysis

Hair et al. (1995) defined multiple regression analysis as “a statistical technique that is used to analyse the relationship between a single dependent variable and several independent variables”. Jobson (1991) and Tabachnick and Fidell (1989) proclaimed this technique as the most commonly applied statistical technique for relating a set of two or more variables. Avkiran (1995) noted that the multiple regression analysis provides an equation to predict the magnitude of the dependent variable, providing values for the independent variables.

In this context, Cohen et al. (2003) reported that multiple regression analysis is broadly application to hypotheses generated by researchers in several fields, including business. There were two main reasons for the selection of Multiple Regression Analysis for this study. Firstly, multiple regression analysis has been used in most of the studies already conducted in this area. This allowed the researcher to compare his findings with others of previous studies in the same area and also with those conducted in developed countries. At the same time, there was no justification for using other techniques of data analysis in order to make comparisons with other studies. Secondly, the variables which were proposed in the conceptual framework of portfolio profits (Table 5-1) in chapter five were derived from previous studies. The model used was based on a multiple regression approach using secondary data to test the research questions of this study. The literature previously mentioned was reviewed to examine the relationship between several factors, both internal and external, and their impact on the portfolios of Libyan commercial banks, in order to select the most appropriate model. Published data were used to research whether there is a relationship between several factors (explained in the framework in chapter five) and the profits of commercial banks in developing counties, such as Libya. In addition, to fulfil the objectives of this research, the approach was to examine this framework of bank profits by analyzing documentary resources such as the financial statements and annual reports of commercial banks, the Central Bank of Libya and other departments of the government for each year of the study period, 1997– 2008.

7.2.2 Panel data analysis

Panel data analysis allows the researcher to control variables which cannot be observed or measured, such as disparity in the volume of business between companies and cultural factors, etc. In addition, it assists the researcher to control unobservable variables that change over time but not across entities, and also it allows the researcher to use variables at different levels of analysis.

Gujarati (2003, p. 652) argues that “panel data analysis consists of observations on the same cross-sectional, or individual units over several time periods”. There are advantages of using panel data over cross-sectional or time series data. Gujarati (2003) states the following: (1) Panel data methods consider heterogeneity explicitly by taking into account the individual-specific variables; (2) Panel data combine both time series and cross-section data, so such data will include more information, more variability, and less co-linearity between variables; (3) Panel data are more suitable for studying the dynamics of change, as well as studying more complicated behavioural models; (4) Panel data minimize the bias that may occur if firms are combined into broad aggregates. Gujarati (2003, p. 638) also argues that "panel data can enrich empirical analysis in ways that may not be possible if we use only cross section or time series data". On the other hand, Gujarati (2003, p. 652) also said that “despite its increasing popularity in applied research and despite increasing availability of such data, panel data regressions may not be appropriate in every situation. One has to use some practical judgment in each case”. In the light of this comment, the empirical models of this research classified two stages, as follow: (1) Investigate the determinants of the profits of public and private banks; (2) Investigate the determinants of high profit banks and low profit banks. So, regression models and panel data analysis were used in this research to identify the important factors that impact on portfolio profits.

7.2.3 Fixed Effects and Random Effects Models

In this study the researcher focuses on two types of technique used to analyze panel data; these techniques are (1) fixed Effects Models, (2) random Effects. In this context, ModelsGreen (2008, p.183) argued that “the crucial distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model, not whether these effects are stochastic or

not". The researcher used a Hausman test to select which of these two models should be used in this study (Gujarati, 2003).

7.2.4 Hausman Test

The study uses Multiple Regression Analysis, so it can adopt either a fixed effect or a random effect model. Fixed effect is a reasonable model to deal with panel data, but it might not be the most efficient model to estimate the relationship between variables.

A random effect model is always better than fixed models as an efficient effects estimator, by giving a better p-value. So the null hypothesis was tested by the Hausman test, and the coefficient estimated by efficient random effects estimator were the same as the ones estimated by the consistent fixed effects estimator. If the p-value for the test is less than 1%, this indicates that the random effects model is not appropriate and that fixed effects specification is preferred (Brooks, 2008).

7.2.5 E-Views Statistical Package

Several standard software packages are commonly used for panel data models, such as PcGive, STATA, TSP, LIMDEP and E-Views. The E-Views statistical package was used in this research, due to its perceived appropriateness. E-views does not weight observations in pooled estimation by default, but there is the option of estimating weighted versions of the specifications. E-Views allow a researcher to perform coefficient tests on the estimated parameters of the pool equation, such as the Wald test. The explanatory variables can be: (1) common coefficients, and (2) cross section specific coefficients. E-Views allows four options for dealing with intercepts: (1) None (no intercept), (2) common identical intercepts for all pool members, (3) fixed effects different intercepts estimated for each pool member, (4) random effects treats intercepts as random variables across pool members (Brooks, 2008).

7.2.6 Correlation Analysis

In this context, Mann, (1995) stated that correlation analysis is as instrument to measure the linear association between variables. This research utilises correlation analysis for two purposes; firstly, to examine the presence of multi-co linearity, and secondly, to explore the relationships between the variables. As noted earlier in the chapter, in order to check the presence of multi-co linearity, this study applied a ceiling of .80 for the correlation coefficient, as suggested by Berry and Feldman (1985) and Hair et al., (1995). The correlation matrix is reported in Table 7.1 and shows all the independent variables which were used in the estimation of model 5 in chapter five. The result of the correlation matrix across all variables was quite small; this result allowed estimating model 5 to explain the influence of the independent variables on a dependent variable. So, the independent variables were not significantly related to each other. This indicated that all the variables listed in both tables may be used in the regression models to estimate model 5 in chapter five.

Table 7.1: Correlation Matrix

variables	Loans	Demand deposits	Time deposits	Bank capital	Credit risk	Size bank	Market share	Development of the banking sector	Concentration	Economic activity	Inflation	Money supply
Loans	1.00											
Demand deposits	-0.01	1.00										
Time deposits	0.23	0.10	1.00									
Bank capital	0.40	-0.41	-0.33	1.00								
Credit risk	-0.007	-0.50	-0.05	0.24	1.00							
Size bank	0.10	0.21	0.40	-0.47	-0.21	1.00						
Market share	0.28	0.25	0.42	-0.43	-0.23	0.49	1.00					
Development of the banking sector	-0.02	-0.14	-0.17	0.11	-0.05	0.19	-0.02	1.00				
Concentration	0.03	-0.16	-0.07	0.09	-0.06	0.15	-0.02	0.46	1.00			
Economic activity	-0.10	-0.11	-0.47	0.38	-0.25	-0.62	-0.45	0.28	0.15	1.00		
Inflation	-0.03	0.16	0.07	-0.06	0.05	-0.12	0.02	-0.73	-0.43	-0.12	1.00	
Money supply	-0.08	0.036	-0.10	0.01	0.009	0.11	-0.009	0.54	0.13	0.19	0.12	1.00

7.3 Model specification and selection

In this research, the static panel data models include a fixed effects model and a random effects model. These two models are compared to discover which one offers better modeling. First, the Hausman test was applied to examine the reported coefficients of the two models. Then R squares, R squares Adjusted, F test and Durbin-Watson test were applied. In static relationships, the literature usually applies least squares methods on fixed or random effects models.

The model 5 in chapter five is the basis of the equation in this research. The econometric analysis of model 5 follows four steps: First, the research tests for descriptive analysis. Second, the research examines the correlation between the independent variables. Third, the research examines whether individual effects are fixed or random. Fourth, the research examines the effects of fixed models and the effects of random models by using the Hausman test to determine which the better model to analyses the data is.

7.3.1 Libyan Commercial Banks

As in some previous studies, this research deals with different variables for a regression analysis of commercial banks, as mentioned in Table 5.1 in Chapter five. The research excludes several variables such as the financial crisis, liquidity risk, cash reserve ratio and statutory liquidity ratio, due to their correlation with other variables. The Hausman test was used to test fixed model effects and random model effects, as reported in Table 7.2. The estimation results show that individual effects were present, since the relevant F-statistic was significant at the 1% level, showing that the random effects model was appropriate and that fixed effects specification was not to be favored, because the p-value for the test was not less than 1%. This research uses the fixed effects model as a reference, but it will apply the random effects model.

The estimation results of the two static models using the Hausman test are reported in Table 7.2, which were R squares, R squares Adjusted, F test and Durbin-Watson in fixed effects model, giving results of: 0.670223, 0.599195, 9.435939 and 1.660284 respectively, and in random effects model, 0.709162, 0.540476, 4.20404 and 2.415877 respectively.

Table 7.2: Static Panel data model comparison (All Libyan commercial banks)

Variables	Fixed Model		Random Model	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	0.17518**	2.827562	0.731393**	3.095365
Loans	0.01062	0.766378	0.04847*	2.570388
Demand deposits	-0.00439	-0.48772	-0.02436*	-1.82755
Time deposits	-0.15816***	-4.20647	-0.22778***	-4.03194
Ownership	-0.004092	0.413506	-0.00406	-0.26639
Bank capital	0.225402*	5.751244	0.148255*	2.676744
Credit risk	-0.01455**	-3.419	-0.0271***	-4.85216
Size bank	-2.48E-06**	2.849408	3.50E-06*	1.905439
Size bank ^{2}	-0.00109**	-2.99453	-0.00124*	-2.14909
Market share	-0.07653*	-1.94369	-0.1638*	-2.39147
Development of the banking sector	0.025667	0.101865	-3.20104*	-1.68604
Concentration	-0.09545	-1.42264	-0.22282	-1.0688
Economic activity	-0.0024**	-2.96185	-0.00699***	-4.04198
Inflation	-0.14616	-0.80413	-1.67092*	-1.99461
Money supply	0.006994	0.195224	0.357638*	1.743152
R squares	0.670223		0.709162	
R squares adjusted	0.599195		0.540476	
F test	9.435939		4.20404	
Durbin-Watson	1.660284		2.415877	
Hausman Test	0.3931			

Notes: *, ** and * indicate coefficient is significant at 1 %, 5%, and 10% levels**

7.3.1.1 Results of static panel data models with all commercial banks

Table 7.2 shows that the adjusted R-square in the model was 54%, which means that 54% of the variation in the dependent variable was explained by the model. In other words, 54% of the variation in the dependent variable was explained by the independent variables which were included in this model. Thus, 46% of the variation in the dependent variable was explained by other independent variables not included in this model. Table 7.2 also reports the regression results for the dependent variable, portfolio profits. According to the results above, the random effects model should be the better model to analyse data in this research.

The results of the random effects model are used to analyze the significance of the independent variables. The following independent variables: time deposits, credit risk, and bank capital were found to be significant at a 1% level, whilst the variables bank capital, and market share were significant at a 5% level; the variables loans, demand deposits, bank size, the level of development of the banking sector, inflation and money supply were significant at a 10% level. On the other hand, the variables ownership and concentration were insignificant, implying that they do not explain the changes in the dependent variable; they are, therefore, excluded from the research. Variables such as loans, bank capital and money supply have a positive correlation with portfolio profits in Libyan commercial banks while, on the other hand, variables such as concentration, reform of the banking system, demand deposits, time deposits, inflation, credit risk, bank size and market share were found to have a negative correlation with portfolio profits.

7.3.2 Public and private banks

The estimation results of the two static models obtained by using the Hausman test are shown in Table 7.3 and 7.4, which shows the hypothesis tests including R squares, R squares Adjusted, F test and Durbin-Watson. The issue to be decided was the selection between a fixed effects and random effects model. As indicated by the Hausman test on model 5 (see Table 7.3, 7.4), the difference in coefficients between fixed and random effects is systematic in both public and private banks. So this result shows there is strong evidence in favor of a random effects model for both public and private banks. In additional, the estimation results showed that individual effects are present in both public and private banks, since the relevant F-statistic is significant at the 1% level.

In addition, the research excluded several variables such as financial crisis, liquidity risk, cash reserve ratio, and statutory liquidity ratio due to their correlation with other variables.

7.3.2.1 Public Banks

In the public banks, the p-value was 0.2351, and the p-value for the test was not less than 1%; this indicates that the random effects model is appropriate and that fixed effects specification is not to be favored for the study. The research uses the fixed effects model as a reference, but it will apply the random effects model. The estimation results of the two static models obtained by using the Hausman test are reported in Table 7.3, which were R squares, R squares Adjusted, F test and Durbin-Watson in fixed effects model; the results were: 0.987815, 0.98519, 376.3803 and 2.820644 respectively, and in random effects model, 0.988856, 0.982392, 152.9901 and 2.957676 respectively. The two models are significant at a 1% at level.

Table 7.3: Static panel data model comparison (Pubic banks)

	Fixed Model		Random Model	
Variables	Coefficient	t-Statistic	Coefficient	t-Statistic
C	-8.42E-05	-0.4031	-9.51E-05	-0.36327
Loans	-0.03248*	-2.59005	-0.03991**	-2.75861
Demand deposits	-0.0164***	-6.44976	-0.0163***	-5.39338
Time deposits	-0.01428	-1.35447	-0.01239	-1.02674
Ownership	-3.375302	9.323875	-3.609764	8.750353
Bank capital	0.00085	0.463705	0.00086	0.381586
Credit risk	0.012287**	3.347033	0.015216***	3.565469
Size bank	-0.66162***	-9.07302	-0.70756***	-8.53575
Size bank ^{2}	0.031534***	8.707246	0.033619***	8.198104
Market share	0.087701***	5.024537	0.099272***	4.965957
Development of the banking sector	0.921869***	10.73772	0.994186***	8.74128
Concentration	-0.02855	-1.15755	-0.02218	-0.67415
Economic activity	-0.0017***	-4.18196	-0.00179***	-3.6274
Inflation	0.411094***	8.564894	0.462667***	6.905866
Money supply	-0.11315***	-11.0678	-0.12441***	-8.79957
R squares	0.987815		0.988856	
R squares adjusted	0.98519		0.982392	
F test	376.3803		152.9901	
Durbin-Watson	2.820644		2.957676	
Hausman Test	0.2351			

Notes: *, ** and * indicate coefficient is significant at 1 %a 5% and 10% levels**

7.3.2.2 Private Banks

In the private banks, the p-value was 0.1624, which was not less than 1 %. Hence, this indicates that the random effect model is appropriate for this study and that fixed effects specification is not to be favored. It can be seen in Table 7.4 that the random effects model has the highest R-squared value, R squares Adjusted and Durbin-Watson, which were 0.82567, 0.724559 and 2.235816 respectively. The two models are significant at a 1% level. Thus, the research used the fixed effects model as a reference, but applied the random effects model in this study. The estimation results of the two static models obtained by using by the Hausman test are reported in Table 7.4, which were R squares, R squares Adjusted, F test and Durbin-Watson in fixed effects model; the results were: 0.757461, 0.705222, 14.49985 and 1.676824 respectively.

Table 7.4: Static panel data model comparison (Private Banks)

Variables	Fixed Model		Random Model	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	-6.67E-06	-0.00233	0.002852	0.690129
Loans	0.042587*	2.552258	0.050731**	2.892115
Demand deposits	0.000343	0.02811	-0.01409	-0.99472
Time deposits	-0.27587***	-4.52447	-0.25524***	-4.03664
Ownership	0.216591**	3.194077	0.439288*	2.331839
Bank capital	0.188145***	3.741012	0.162775**	3.168334
Credit risk	-0.01927***	-3.94068	-0.02567***	-4.74482
Size bank	6.67E-06**	3.003902	6.35E-06*	2.613299
Size bank ^{2}	-2.89E-39*	-2.54821	-1.41E-39	-0.96444
Market share	-1.51099***	-4.72593	-1.54143***	-4.19006
Development of the banking sector	-0.43418	-1.36762	0.228464	0.356858
Concentration	-0.14845	-1.66553	-0.50616*	-1.9784
Economic activity	-0.00394***	-3.77913	-0.00562***	-4.39899
Inflation	-0.45801*	-2.18566	-0.51495	-1.02677
Money supply	0.080499*	1.950283	-0.01573	-0.1632
R squares	0.757461		0.82567	
R squares adjusted	0.705222		0.724559	
F test	14.49985		8.165951	
Durbin-Watson	1.676824		2.235816	
Hausman Test	0.1624			

Notes: *, ** and * indicate coefficient is significant at 1 %, 5% and 10% levels**

7.3.3 Results of static panel data models with public and private banks

Table 7.5 shows the regression results for the dependent variable, portfolio profits. According to the results above, the random effects model is the better model in both public and private banks. The results of the random effects models were used to analyze the significance of independent variables to the dependent variable. Table 7.5 shows that independent variables in the random effects model of public banks such as bank capital, credit risk, bank size, market share, the level of development of the banking sector and inflation were found to have a positive correlation with portfolio profits in Libyan commercial banks.

Table 7.5: Static panel data model (public and private banks)

	Public banks		Private banks	
Variables	Coefficient	t-Statistic	Coefficient	t-Statistic
C	-9.51E-05	-0.36327	0.002852	0.690129
Loans	-0.03991**	-2.75861	0.050731**	2.892115
Demand deposits	-0.0163***	-5.39338	-0.01409	-0.99472
Time deposits	-0.01239	-1.02674	-0.25524***	-4.03664
Ownership	-3.609764***	8.750353	0.439288*	2.331839
Bank capital	0.00086	0.381586	0.162775**	3.168334
Credit risk	0.015216***	3.565469	-0.02567***	-4.74482
Size bank	-0.70756***	-8.53575	6.35E-06*	2.613299
Size bank ^{2}	0.033619***	8.198104	-1.41E-39	-0.96444
Market share	0.099272***	4.965957	-1.54143***	-4.19006
Development of the banking sector	0.994186***	8.74128	0.228464	0.356858
Concentration	-0.02218	-0.67415	-0.50616*	-1.9784
Economic activity	-0.00179***	-3.6274	-0.00562***	-4.39899
Inflation	0.462667***	6.905866	-0.51495	-1.02677
Money supply	-0.12441***	-8.79957	-0.01573	-0.1632
R squares	0.988856		0.82567	
R squares adjusted	0.982392		0.724559	
F test	152.9901		8.165951	
Durbin-Watson	2.957676		2.235816	
Hausman Test	0.2351		0.1624	

Notes: *, ** and * indicate coefficient is significant at 1 %, 5% and 10% levels**

On the other hand, variables such as ownership loans, demand deposits, term deposits, concentration, per capita income, and money supply have a negative correlation with portfolio profits. The independent variables demand deposits, ownership, credit risk, bank size, market share, the level of development of the banking sector, inflation; and money supply were found to be significant at a 1% level.

In addition, several variables such as: term deposits, bank capital and concentration were insignificant, implying that they do not explain the changes in the dependent variable, thus, they are excluded from explanations later.

Table 7.5 shows that the adjusted R-square in the model of the public banks was 98%, which means that 98% of the variation in the dependent variable was explained by the model. In other words, 98% of the variation in the dependent variable was explained by the independent variables which were included in this model. Thus, 2% of the variation in the dependent variable was explained by other independent variables not included in this model.

Table 7.5 also reports that the independent variables in the random effects model in private banks: term deposits, credit risk, market share, and per capita income are significant at a 1% level whilst the variables bank capital and loans were significant at a 5% level; also, the variables ownership, bank size and concentration were significant at a 10% level. On the other hand, there were several variables such as demand deposits, the level of development of the banking sector, inflation and money supply were insignificant implying that they did not explain the changes in the dependent variable, thus, they are excluded from explanations later. Variables such as loans, bank capital, size bank, ownership and the level of development of the banking sector were found to have a positive correlation with portfolio profits in private banks. On the other hand, variables such as concentration, demand deposits, term deposits, inflation, credit risk, market share, per capita income and money supply were found to have a negative correlation with portfolio profits. The adjusted R-square in the model of the private banks was 72%, which means that 72% of the variation in the dependent variable was explained by the model. Thus, 28% of the variation in the dependent variable was explained by other independent variables not included in this model.

7.3.4 High and low profit banks

The estimation results of the two static models obtained by using the Hausman test are reported in Table 7.5 and 7.6, which show hypothesis tests including R squares, R squares Adjusted, F test and Durbin-Watson. The issue was the selection between a fixed effect and random effects model to explain relationships between an independent variable and dependent variables in this research. The estimation results show that individual effects are present, since the relevant F-statistic is significant at the 1% level. The research excluded several variables such as the financial crisis, liquidity risk, and cash reserve ratio, due to their correlation with other variables.

7.3.4.1 High profit banks

In this research the p-value was 0.2614; this indicates that the random effects model was appropriate and that fixed effects specification was not to be favored for the research.

T able 7.6: Static panel data model comparison (High profit banks)

Variables	Fixed Model		Random Model	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	0.189738**	2.665929	0.01351	0.108494
Loans	0.082506***	3.683587	0.0689*	2.68073
Demand deposits	-0.01393	-1.04899	-0.01885	-1.18533
Time deposits	-0.19728***	-3.67498	-0.14505*	-2.21288
Ownership	-0.03448	-1.46505	-0.04849*	-1.95808
Bank capital	0.064608	1.091464	0.13611*	1.914185
Credit risk	-0.02188**	-3.10558	-0.02788**	-3.39148
Size bank	1.66E-10*	2.48742	7.46E-11	0.843746
Size bank ^{2}	-2.14E-94	-0.45191	2.84E-94	0.566195
Market share	-0.16708**	-3.2498	-0.10474	-1.56585
Development of the banking sector	0.686059*	1.996302	2.956346	1.37845
Concentration	-0.24568*	-2.5151	-0.39234	-1.1788
Economic activity	-0.0047**	-2.83553	-0.00389*	-1.81437
Money supply	-0.06071	-0.30051	0.898588	1.156205
Statutory liquidity ratio	-0.05879	-1.43914	-0.28412	-1.21166
R squares	0.470766		0.613086	
R squares Adjusted	0.346727		0.3762	
F test	3.7953		2.588106	
Durbin-Watson	2.058768		2.588779	
Hausman Test	0.2614			

Notes: *, ** and * indicate coefficient is significant at 1 %, 5% and 10% levels**

Thus, the research used the fixed effects model as a reference, but will apply the random effects model in this research. The estimation results of the two static models obtained by using the Hausman test are reported in Table 7.5, which were R squares, R squares Adjusted, F test and Durbin-Watson in fixed effects model; the results were: 0.470766, 0.346727, 3.7933 and 2.058768 respectively, and in the random effects model, 0.613086, 0.3762, 2.588106 and 2.588779 respectively.

7.3.4.2 Low profit banks

The estimation results of the two static models obtained by using by the Hausman test are reported in Table 7.7, which shows hypothesis tests including R squares, R squares Adjusted, F test and Durbin-Watson.

Table 7.7: Static panel data model comparison (Low profit banks)

Variables	Fixed Model		Random Model	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	-0.00079	-0.26431	0.003838	0.776279
Loans	0.01196	0.631266	0.012615	0.591735
Demand deposits	-0.00744	-0.59494	-0.02628*	-1.7255
Time deposits	-0.3178***	-5.0196	-0.29522***	-4.39744
Ownership	0.196299***	3.989954	0.210108***	4.08958
Bank capital	-0.00916*	-1.70563	-0.02147***	-3.52912
Credit risk	-9.05E-06	-1.35647	-1.32E-05*	-1.8475
Size bank	8.75E-36	1.51227	7.98E-36	1.340482
Size bank ^{2}	0.593518	0.580091	1.58128	1.416767
Market share	-0.24519	-0.66066	0.425603	0.57376
Development of the banking sector	0.117487**	2.83009	0.065057	0.556412
Concentration	-0.00164	-1.31078	-0.00343*	-2.01491
Economic activity	0.07812	0.510642	0.521715*	1.889394
Money supply	0.024918	0.58106	-0.07514	-0.81421
Statutory liquidity ratio	0.001394	0.047272	8.64E-05	0.002613
R squares	0.753525		0.823427	
R squares adjusted	0.695757		0.715321	
F test	13.04406		7.616845	
Durbin-Watson	1.358195		1.676377	
Hausman Test	0.1963			

Notes: *, ** and * indicate coefficient is significant at 1 %, 5% and 10% levels**

The issue was the selection between a fixed effects and random effects model. The p-value was 0.1963; this indicated that the random effect model was appropriate and that a fixed effects specification was not to be favored for the research.

The estimation results of the two static models obtained by using the Hausman test are reported in Table 7.6, which were R squares, R squares Adjusted, F test and Durbin-Watson in fixed effects model; the results were: 0.753525, 0.695757, 13.04406 and 1.358195 respectively, and in the random effects model, 0.823427, 0.715321, 7.616484 1.676377 respectively. It can also be seen in Table 7.7 that the fixed effects model has the lower R-squared value, R squares Adjusted, F test and Durbin-Watson, which were 0.753525, 0.695757, 13.04406 and 1.358195 respectively. The two models are significant at a 1% level. The research will use the fixed effects model as references, but it will apply the random effects model in this research.

7.3.5 Results of static panel data models with high and low profit banks

Table 7.8 reports the regression results for the dependent variable, portfolio profits. According to the results above, the random effects model is the better model for both high and low profit banks.

Table 7.8: Static panel data model (high and low profit banks)

Variables	High profit banks		Low profit banks	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	0.01351	0.108494	0.003838	0.776279
Loans	0.0689*	2.68073	0.012615	0.591735
Demand deposits	-0.01885	-1.18533	-0.02628*	-1.7255
Time deposits	-0.14505*	-2.21288	-0.29522***	-4.39744
Ownership	0.13611*	1.914185	0.210108***	4.08958
Bank capital	-0.02788**	-3.39148	-0.02147***	-3.52912
Credit risk	7.46E-11	0.843746	-1.32E-05*	-1.8475
Size bank	2.84E-94	0.566195	7.98E-36	1.340482
Size bank ^{2}	-0.10474	-1.56585	1.58128	1.416767
Market share	2.956346	1.37845	0.425603	0.57376
Development of the banking sector	-0.39234	-1.1788	0.065057	0.556412
Concentration	-0.00389*	-1.81437	-0.00343*	-2.01491
Economic activity	0.898588	1.156205	0.521715*	1.889394
Money supply	-0.28412	-1.21166	-0.07514	-0.81421
Statutory liquidity ratio	-0.08561	-0.14862	8.64E-05	0.002613
R squares	0.613086		0.823427	
R squares adjusted	0.3762		0.715321	
F test	2.588106		7.616845	
Durbin-Watson	2.588779		1.676377	

Notes: *, ** and * indicate coefficient is significant at 1 %, 5% and 10% levels**

Thus, the results of the random effects models were used to analyze data. Table 7.8 shows that the adjusted R-square in the model of the high profit banks was 37%, which means that 37% of the variation in the dependent variable was explained by the model. Thus, 63% of the variation of the dependent variable was explained by other independent variables not included in this model. Table 7.8 also reports that independent variables in the random effects model of high profit banks such as loans, bank capital, size bank, the level of development of the banking sector and inflation had a positive correlation with portfolio profits in Libyan commercial banks. Conversely, the variables demand deposits, term deposits, credit risk, market share, concentration, per capita income, money supply and statutory liquidity ratio had a negative with portfolio profits.

Table 7.8 shows that several independent variables such as loans, term deposits and bank capital were significant at a 10% level. However, the variable credit risk was significant at a 5% level. On the other hand, several variables were found to be insignificant, such as: demand deposits, bank size, market share, the level of development of the banking sector, inflation, money supply, and statutory liquidity ratio; implying that they do not explain the changes in the dependent variable, thus they are excluded from the explanations. Furthermore, Table 7.8 reports that independent variables in the random effects model of low profit banks such as: demand deposits, bank size, bank capital and inflation were significant at a 10% level, whilst the variables bank capital and credit risk were significant at a 1% level, and the variables bank size, and concentration, were significant at a 10% level. Variables such as loans, bank capital, bank size, market share, the level of development of the banking sector, concentration, inflation, and statutory liquidity ratio, had a positive correlation with portfolio profits in low profit banks. On the other hand, variables such as demand deposits, term deposits, credit risk, size bank, bank capital, and money supply, had a negative correlation with portfolio profits.

On the other hand, several variables were insignificant, such as: loans, bank capital, bank size, market share, the level of development of the banking sector, concentration, money supply, and statutory liquidity ratio, implying that they do not explain the changes in the dependent variable, and thus they are excluded from later explanations. The adjusted R-square in the model was 71%, which means that 71% of the variation in the dependent variable was explained by the model. In other words, 71% of the variation in the dependent variable was explained by the independent variables included in this model. Thus, 29% of the variation in the dependent variable was explained by other independent variables not included in this model.

7.6 Summary

The researcher divided this chapter into three sections. The first section discussed statistical tools and introduced multiple regression analysis, panel data analysis, fixed effects and random effects models, Hausman test, E-Views Statistical Package and correlation analysis. The second section covered model specification and selection, while the final section gave the analysis results. The aim of the researcher was to analyse the data of the quantitative stage of this research. The regression models and panel data were used in this research to identify the important factors that impact on portfolio profits, whether public or private, or high or low profit banks. The research applied the software Eviews-6 to test the random effects model and fixed effects model to select which model was better for the research. The results showed that the random effects model was better for all the regression models in this research. The results of the data analysis showed that the independent variables explain the variations in the portfolio profits of Libyan commercial banks.

Chapter eight

Discussion of the quantitative data analysis

8. Analysis of the quantitative data

8.1 Introduction

This section is divided into three parts. In part one there is a statistical analysis of the data for all Libyan commercial banks. Part two compares public and private banks, with reference to the influence of certain variables on profitability, while the part three compares the effect on these variables on both high profit and low profit banks. The researcher will discuss the results of an analysis of quantitative data sourced directly from data published by the Libyan Central Bank and commercial banks, and other Libyan departments of government. The interpretation is presented with reference to the corresponding literature reviewed above.

8.2 Libyan commercial banks

Table 7.2 reported the empirical estimations of equation 5 in chapter five for bank profits in Libyan commercial banks: the dependent variables can be found in Table 5.1, together with the explanatory variables employed in the analysis. Of the fourteen variables within the regression twelve had a statistically significant impact on bank profits, while two of them (ownership and concentration) did not have an impact which was statistically significant. These results are within the bonds of probability, and their signs are consistent with a priori expectations. These results affirm the hypotheses stated in chapter five. The explanatory power of the model is 0.54, with the F-statistic significant at the 1% level, therefore it can be concluded that the explanatory power of the independent variables was influenced by other factors not included in this model.

8.2.1 Asset and liability management independent variables

The management of the structure of bank assets and liabilities is an important factor for stability and bank profits (Bobáková, 2003). Therefore, the objective of the management of every bank is to find how best to utilise the structure of its liabilities and assets for

maximizing profit. Factored into this optimisation are the bank's specific business policy and their risk evaluation, constrained by the liability limit set by policy-makers, or that its reserves comfortably allow. Cemal and Sibel (1997) said that the quality of assets and liability has an affects on the success of a bank, especially when it is operating an unstable economy. The research employed the one set of regression run the Libyan commercial banks, based on bank profits as dependent variables as mentioned in Table 5.1.

The differences in the portfolios of banks can explain to a certain extent the variations in their profits. Additionally, return rates differ enormously between the items on balance sheets (Kwast and Rose, 1982). Table 7.2 suggests that loans had a positive effect on bank profitability and the coefficient was significant at the 10% level. This result can be explained in that loans which were granted directly influence bank profits, but only very weakly. Liabilities were found to negatively impact on bank profits. The coefficient of the demand deposits was significant at the 10% level. This result can be explained in that demand deposits have an influence in decreasing bank profits, but only a very weak one. The coefficient of the term deposits was significant at the 1% level. This result can be explained in that term deposits have a direct and very strong influence on decreasing bank profits. The coefficients of asset and liabilities are significant in determining bank profits. The coefficients of the liabilities are significant, implying that banks are earning only a very small or zero return from these liabilities. These results confirm hypotheses one, two and three in chapter 5.

Based on the empirical results it can be concluded that asset and liability management significantly affects bank profitability in Libyan commercial banks, in line with prior expectations. The results of this research confirm the findings of several other researchers, such as Bourke (1989), and Molyneux and Thornton (1992), who found that there was a relationship between bank profits and management quality. In 2008, the percentage of demand deposits to total deposits in Libya reached 65.1%.

That means that the majority of commercial bank deposits were characterised by instability. Therefore, commercial banks should rather embark in short-term investments. In line with this finding, Weeraselcera (1996) calls for sound deposit management to reduce interest costs on deposits while attracting sufficient funds to the banking system, a policy which is deemed ideal in commercial bank management. The reason for the large volume of demand deposits is the reluctance of customers to use savings accounts. This reluctance is largely due to the interest earned on savings deposits, which is called usury in Islam and is forbidden by the Koran. The management of Libyan commercial banks depends on the powers conferred on the banks to achieve their aims; if banks are allowed to deal only locally, then private local management is the best option, but with the condition that this management establishes the necessary controls to prevent any deviation from their core business. In contrast, if commercial banks are allowed to deal abroad, it is better to use foreign management together with local personnel, in order to take advantage of their expertise on a temporary basis. The Banks' profitability depends on good management and efficiency through the development of good employment and financial policies. They also need to be sufficiently aware of local market information, regardless of ownership; however, private local management and administration is usually more flexible than the public banks.

8.2.2 Bank specific independent variables

According to the results of this study, the coefficient of the capital variable is positive and significantly related to bank profits. The results of the analysis indicated that there was a positive relationship between capital and bank profits, confirming hypothesis 4 in chapter five. In this context, Kandil, (2007) stated that capital regulation has an impact in terms of the intermediation costs and profitability considered as a measures of bank performance.

This reflects the sound financial condition of Libyan commercial banks, and suggests that banks are able to cope with any eventuality arising unexpected losses. Hence banks can follow business opportunities to make higher profits. Again, the result of this part of the study is consistent with that of some previous studies (e.g. Bourke, 1989; Keeley and Furlong, 1990; Molyneux and Thornton; 1992; Berger, 1994; Berger, 1995b; Demirgüç Kunt and Huizinga, 1999; Naceur, 2003; Goddard et al., 2004; Athanasoglou, et al, 2005b; Kwan and Eisenbeis, 2005 and Athanasoglou et al, 2006).

Commercial banks have enjoyed a good level of capital and profitability, but they should continue to improve the quality of their assets. The total capital adequacy reached 16% at the end of 2008, and profitability ratios continue to rise. This is due to the large income derived from interest on bank deposits in the Central Bank of Libya. However, at this time, bad loans represented 20% of total loans. Although this ratio has subsequently declined, it remains the highest in the Middle East and North Africa region. Table 7.5 shows that ownership is negative and insignificant. Thus, the coefficient of ownership is not significant in determining bank profits. This result confirmed hypothesis 8 in chapter five, which related to the negative relationship between ownership and bank profits.

In this context, several authors such as Bourke (1989), Molyneux and Thornton (1992), Sturm and Williams (2004) have suggested that there is not necessarily a link between profitability and ownership statutes. The result of the research is also consistent with that of Athanasoglou (2005) who found the relationship to be insignificant. The banking sector in Libya at the time of this study was still predominantly owned by the public sector, which handled 90% of the volume of all banking business in Libya. The Libyan government, through the Central Bank's control of Libya’s largest two banks, the National Commercial Bank and the Jamhouria Bank, also owned the majority share in each of the Whada Bank (87%) and Sahara Bank (82.7%), before the beginning of the privatization process.

Compared to the dominant public sector, the private sector's twelve banks are small. Despite the development of private banking in the Libyan banking sector, in the last decade, the private banks have failed to establish themselves as more profitable; in fact, so far privatization and integration have not had any significant impact on bank profit.

In contrast to the effect of ownership, the estimation of the equation reported 20that the size of the bank positively and significantly affects bank profits: the estimation shows that the size of a banks affects its profit, usually in a positive and statistically significant way; this relationship is linear in that the square of bank assets is negative (the square of bank assets is negative but significant at level 10%). The estimated effect of the size of Libyan commercial banks did not provide evidence for economies of scale in banking. This may have been due to bureaucratic reasons. Thus, large banks could have been facing inefficiencies, especially as the largest banks were public.

The study agrees with Athanasoglou et al. (2005), but this result is not consistent with that of several other researchers such as Smirlock (1985), and Eichengreen and Gibson (2001), who found that the relationship between bank profits and bank size was negative. In addition to the findings above, Goddard et al. (2004) found a weak relationship between profit and size, being in concordance with Athanasoglou et al. (2005). The results suggest that the small size of the commercial banks was among the most important aspects of their structural weakness, because it had a direct effect on the scale of their investment portfolios. Although their assets and capital had increased in the years prior to the study, small private commercial banks continued to suffer from the size of the portfolios. A positive relationship was found between bank profit and risky assets; it is possible to assert that profits are derived from risky assets. All banks seek to maximize the utility function of their portfolio assets. Nevertheless, banks face the probability of failure unless portfolio regulations are followed, (Blair, 1978). As expected, credit risk impacts negatively and significantly on the profitability of commercial banks.

A possible explanation for this result is that credit risk influenced bank profits too much, and when the banks try to maximize profits by new investment requiring improved policy monitoring. This result confirms hypothesis 5, in chapter five, which is related to credit risk, and states that a negative relationship exists between profitability and credit risk. In Libyan commercial banks credit risk is one of the principal determinants of bank profits through portfolio size, and the relationship between credit risk and bank profit has been investigated in this research. The result of the research is in line with that of several other studies, conducted for example by Miller and Noulas (1997), and Athanasoglou et.al, (2005). Risk management, as is the case in any bank scoter, is central to the operations of Libyan banks. This may refer to two reasons: (1) poor asset quality is a major cause of lower profits, in spite of higher levels of bank liquidity.

Thus, in order to avoid profit decreases, the banks should improve their asset quality and enhance their borrowing; (2) management quality may be low because and the board of directors may be failing to deliver honest and effective leadership, because the largest banks are managed by public-sector management teams. The net effect of this tendency has been to increase the ratio of substandard credits held by Libyan banks as well as the credit portfolio, leading to a decrease in bank profits. The research suggests that an improvement in corporate governance results in a higher market value and profitability. This improvement can be facilitated by investing managers with greater autonomy and by implementing modern international accounting standards. Sound banking management is an unavoidable necessity in order to achieve greater profits and a more stable banking system. In this vein, several studies have been done to investigate how management quality affects bank profits, such as those of Santomero (1980), Bourk (1989), Molyneux and Thornton (1992) and Claessens et al. (1997). They all found that the relationship between bank profits and management quality is positive.

Table 7.2 shows that market share was found to be negative and significant at a 10% level. The market share coefficient is therefore significant in determining bank profits. This result did not confirm hypothesis 8 in chapter five, which posited to positive relationship between market share and profitability. Several authors, such as Berger, (1995a) and Athanasoglou et al., (2005) have found that profits and market shares rise due to improvements in management. The result of this research agrees with certain previous studies (e.g. Athanasoglou et al., 2005). As seen in chapter 5, the market share of each bank was measured by percentage. Thus, from the balance sheet of each bank, the research noted that the majority of assets were concentrated on fixed assets, meaning that these assets are non-profitable on the one hand. The research also noted that the total of liquidity assets represented more than 45% of the total assets of the majority of commercial banks. Libyan commercial banks suffer from a surplus of liquidity, due to the poor performance of investments. Similarly, Berger (1995a) suggested that an increase in profits and market share is affected by managerial efficiency; however, he also suggested the positive relationship between bank profits and market concentration was a spurious one. The empirical result concluded the variables related specifically to banks, excluding market share, had a significant effect on bank profits of Libyan commercial banks in line with prior expectations set out in chapter five. The research confirmed that the high degree of market share of commercial banks in terms of total assets was focused on only a few banks. This situation substantially affected competition and the performance of the market: the data collected by this research indicated that the share of the three largest banks amounted to 80% of all the assets held by the entire banking sector.

8.2.3 Bank Industry Independent Variables

The research introduced two kinds of bank industry variable, which were, banking system reform and concentration.

These have been applied in previous studies, and their impact on commercial banks is direct. In term of industry variable, as can be seen from Table 7.2, the level of development within the banking sector in Libya was found to be negative and significant. Moreover, the coefficient of this level of development had a significant determining effect on bank profitability.

The result did not confirm hypothesis 11 in chapter five, which suggested a positive relationship between the level of development of the Libyan banking industry and bank profits: it seems that the difference is due to the development of banking policy on banking having the effect of making transactions more complicated.

As a result, several reasons such as privatization, integration between banks or a proportion of public banks being sold to foreign banks emerge. The development of banking policy affects bank profits in Libyan commercial banks. However, the Libyan while there were significant changes to the Libyan banking system during this research, the level of market share of the stat-owned banks remained high. So, the present study's results confirm those of Athanasoglou et al., (2005). The findings are also supported by Demirgue-Kuntanal (2000) who stated that the development of bank regulation would decrease the profits of banks. This refers to the largely unregulated state of banks, especially in developing countries such as Libya. On the other hand, several researchers, such as Fries and Taci (2002) and Pasiouras and Kosmidou (2007), have found this relationship to be a positive one. Similar to the effect of the level of development within the Libyan banking sector, there was a negative impact of concentration which was insignificant on bank profits. A possible explanation for this result is that concentration within commercial banks has influenced bank profits. The results did not confirm hypothesis 10 in chapter five, which suggested that there would be a positive relationship between concentration and profitability. Therefore this research is consistent with Athanasoglou et al., (2005).

Conversely, several researchers have found this relationship to be positive and significant, such as Bourke (1989), Molyneux and Thornton (1992) and Eichengreen and Gibson (2001).

The ratio of demand deposits to total deposits is very high; especially as public banks have a lower percentage than private banks. Consequently, commercial banks cannot use the funds in their demand deposits for long term investments, although demand deposits have a very small cost to banks. The research confirmed that deposits were highly concentrated in the commercial banks, and this was focused on only a few banks. This substantially affected competition and the performance of the market.

8.2.4 Macroeconomic Independent Variables

The study introduced three kinds of macroeconomic variables, which have been used in previous studies, and which were found to have had a direct effect on the commercial banks, for example, expected inflation, per capita income, and money supply. Firstly, inflation impacts negatively and insignificantly on the profitability of the Libyan commercial banks. This finding did not confirm hypothesis 11 in chapter five, which suggests that there is a positive relationship between inflation and profits. This may be described by the inability of Libyan banks' management to satisfactorily forecast future inflation, which, in turn, implies that interest rates have been inappropriately adjusted to the aim of achieving higher profitability. This inability to forsee trends in inflation may be regarded as the reason for their inability to produce profits above the normal range. This is due to the disadvantages of asymmetric information.

So, this result is not consistent with the findings of several researchers who have studied bank profitability, who found that it had a positive relationship inflation (e.g. Bourke, 1989; Molyneux and Thornton, 1992; Athanasoglou et al, 2005). Inflation, measured through the annual rate of change in the index of consumer prices, has contributed significantly to the inflationary pressures of rising import prices for basic goods, which

has clearly affected the living conditions of citizens. In addition, the volume of economic activity and domestic demand has both contributed to the increase of inflationary pressures.

As a result of the increase in the expenditure levels and higher rates of growth of monetary aggregates and credit, property prices have risen. Secondly, per capita income impacts negatively on the profits of commercial banks. In this context, Silber (1969) emphasised that the mobilization and velocity of income will also impact on banks portfolio composition. This result did not confirm hypothesis 13, which related to the relationship between a bank's profits and per capita income. One possible explanation for this difference lies in the tight monetary policy followed during the period under research, which constrained bank lending. Also, it is necessary to take account of the strong relationship between growth in the economy on one hand, and increased bank profitability on the other, in addition to the uncertainty caused by macroeconomic instability. So, the result of this research is not consistent with that of several other researchers (e.g. Bikker and Hu, 2002; Demirgüç-Kunt and Huizinga, 1998; Athanasoglou, et al. 2005) who found the relationship between the business cycle and bank profitability to be positive.

Finally, monetary policy has a strong impact on the macro economy, due to the change in money supply; consequently, it influences the composition of a bank's portfolio (Silber, 1969). The results show that money supply is found to be positive and significant at a 10% level. The coefficient of the money supply is significant in determining bank profits. The result confirms hypothesis 15 in chapter five, which suggested that money supply had a positive relationship with profitability. Crude oil price rises had a significant effect on oil exports and oil revenues due to increasing oil prices on the world market causing an increase in net foreign assets, both at the Central Bank of Libya and Libyan commercial banks.

8.3 Public and private banks

The second set of regressions was run the public and private Libyan commercial banks separately, based on bank profits as the dependent variable, as mentioned in Table 5.1. The results in table 7.5 showed that, of the sixteen coefficients of the first regression (public banks) eleven were statistically significant, as were nine of the coefficients of the second regression (private banks). These estimates consistent with expectations because their signs are the same as those predicted in the hypotheses in chapter 5.

8.3.1 Assets and liabilities management independent variables

Independent Variables Table 7.5 suggests that loans impacted negatively on the profits of public banks, and its coefficient was significant at a 5% level. However, with the second regression (private banks) the loans were positive and their coefficient significant at a 5% level. The results of this research are not consistent with those of Sayeed and Hoque (2008) who found the relationship in public banks to be positive and significant at 5% level; however the results of the research are consistent with them in that private banks showed a relationship at the same level. A possible explanation for these results is that loans in public and private banks influence bank profits. Those results did not confirm hypothesis 1 (in chapter five) as to public banks, but they confirm it as to private banks. All the liabilities in both public and private banks were found to have had have a positive effect on bank profitability. The coefficients in the public banks of the demand deposits were significant at a 1% level, and the coefficients of the term deposits were insignificant. However, in the private banks, the coefficients of the demand deposits are insignificant, and the coefficients of the term deposits are significant at a 1% Level. So, these results can be explained in that liabilities in both public and private banks influence bank profits. Nevertheless, the results for demand deposits in private banks and term deposits in public banks do not confirm hypotheses 2 and 3 respectively (in chapter five).

On the other hand, the results with regard to demand deposits in public banks and term deposits in private banks do confirm hypothesis 2 (in chapter five).

Thus, the results of this research are not consistent with those of Sayeed and Hoque (2007) in terms of the coefficient of demand deposits, instead finding the relationship to be positive and insignificant in both public and private banks. In this context, Sayeed and Hoque (2007) concluded that the coefficients of term deposits are insignificant in both public and private banks, but the result of this research is not consistent with them in terms of private banks. Table 7.8 further confirms that private banks earn significantly higher net return from loans, increasing by 0.05073 for each unit of investment in loans, compared to the public banks. A higher return on this asset is sufficient to create profitability differences between the two types of banks. Also on the liability side, public banks experience lower marginal costs on term deposits compared to private banks, whereas private banks experience lower marginal costs on demand deposits compared to public banks. In addition, table 7.5 shows that the coefficient of the liability time deposits was not significant as a determinant of the profits of public banks. Furthermore, the coefficient of one liability, demand deposits is not significant in determining the profits for private banks. Consequently, differences found for these two variables are not meaningful for either kind of bank. However, the coefficient of the asset loans in both public and private was significant in determining bank profits. Banks, in order to find a balance between assets and liabilities and to increase profitability, need to eliminate risks which could be associated with asset operations (Bobáková 2003). In terms of the management of assets, the results showed that public banks employed less significant asset management strategies than the private banks. In spite of this finding, the research did not provide evidence on which banks are using better liability management strategies. As a result, the findings of this research offer insufficient support to the idea that Libyan private banks apply better assets and liabilities management than public banks.

8.3.2 Bank specific independent variables

The relationship between bank specific variables and public banks: capital, bank risk, bank size, and market share were found to be positive, but ownership was negative. While ownership, capital risk, bank size and market share were found to be significant at a 1% level in public banks, capital risk was insignificant. Thus, all of these variables were significant in determining bank profits, except capital risk. With private banks, ownership, credit risk and bank size were found to have a positive relationship with bank profits, whereas capital risk and market share were negative. Credit risk and market share were significant at a 1% level, while capital risk was significant at a 5% level; in addition to which ownership and bank size significant were at a 10% level. Thus, all of them were significant in determining bank profits. In this context, the effect of managerial efficiency is not only to raise profit, but also to increase market share and therefore concentration. Therefore, the finding that there is a positive relationship and there may actually be other correlations with different variables. Allowing for this correlation, it is probable that the effect of concentration is insignificant (Berger, 1995a). The conclusion of the effect of bank specific variables on bank profits is that public banks lose significantly at 1% level returns from bank specific variables, whereas the size compared to that of the private banks, increases their profits at 10% level. The estimation result reported an important effect of the size of a bank on its profitability.

This phenomenon may be explained by the desire of small banks to expand as rapidly as possible, without regard to their profits. Libyan private banks tend to be only marginally profitable in their start-up phase, placing greater importance on expansion that profitability. In addition, public banks earn significantly positive higher returns from the following bank specific variables at a 1% level; ownership, credit risk, and market share, compared to the private banks.

In this context, Elyasiani (1995) stated that capital inadequacy prevents a bank from investing in the optimal portfolio, and that one of the problems confronting the allocation of a portfolio of a bank is the costs imposed by the monetary authority. Despite these factors private banks increased their profitability in comparison to public banks significantly by specific variables at a 5% level, such as capital risk.

Several researchers such as Bourke (1989), and Molyneux and Thornton (1992) have found that a relationship between bank's profit and its ownership. Furthermore, Barth et al. (2004) maintain that state ownership has a negative effect on the efficiency of a bank. The results indicated that ownership status seems to have positive and significant effect on the profit of banks in the private sector. The coefficients are significant in determining bank profits. This result is surprising, because the market share of these banks began in 1996, and had reached around 9% in 2008, principally because of integration and privatization. This finding may be due to the level of development within the Libyan banking sector, whereby private banks seem to be more profitable, possibly due to the effect on consolidation within this sector.

8.3.3 Bank industry independent variables

As to the results of industry variables as reported in Table 7.5, the level of development of the Libyan banking industry was found to be positive in both public and private banks, but their coefficients are insignificant. Thus, coefficients of the level of development within the Libyan banking sector were significant in determinants of the profitability of public banks, but not private banks. Demirguc-Kunt and Huizinga (2001) reported a similar found that there was a relationship between bank performance and level of financial development. This was also supported by Necer (2003) who sought to investigate the impact of financial structure and bank characteristics on bank profits in Tunisian. The results illustrate the extent to which development within the financial market has had an effect on profits.

The results indicate that concentration is negative on bank profits in both public and private banks, being a significant coefficient for private banks and an insignificant one for public banks. Thus, a coefficient of concentration is significant for in term of being determinant of the profit of private banks, but not their public counterparts. This study's results concerning private banks are consistent with those of several previous researchers (e.g. Berger, 1995a; Molyneux and Thornton, 1992; Claessens et al, 1997; Demirgue-Kuntanal, 2000; 42Demirguc-Kunt and Huizinga, 2001; Mitton, 2002; and Demirguic, 2003). These researchers found that there was a positive relationship between bank profitability and concentration, while in contrast the other hand, Athanasoglou et al. (2006b) state that there is no significant relationship between bank profitability and the structure of the banking industry.

8.3.4 Macroeconomic independent variables

In this regression analysis, table 7.5 shows that per capita income, inflation and money supply are found to be significant at a 1% level in public banks. Thus all of them are significant in determining bank profits. This result confirms that per capita income and money supply have a negative relationship with bank profits, but inflation is positive. Regarding private banks, per capita income, inflation and money supply were found to be negative. The coefficient of per capita income was significant at a 1% level, thus it is significant in determining bank profits. Also the coefficients of both inflation and money supply are insignificant, indicating that they are not significant in determining bank profits. The conclusion of the effect of macroeconomic variables on bank profits is that public banks lose, significantly at a 1% level, in terms of the returns from two macroeconomic variables, namely per capita income and money supply, compared to the private banks.

8.4 High and low profit banks

The third set of regressions were run on banks returning high and low profits, separately based on bank profits as the dependent variable, as mentioned in Table 5.1. Table 7.8 shows estimated coefficients with regard to both high profit banks as one group, and low profit banks as another, for the model that was applied.

8.4.1 Asset and liability management independents variables

Table 7.8 suggests that loans had a positive effect on the profitability of high-profit banks, and the coefficient is significant at 10% level. On the other hand, Liabilities had a negative effect on bank profits. The demand deposit coefficient was insignificant, but the second liability term deposit was significant at a 10% level.

In contrast, in terms of the second regression, the loan coefficient was positive but insignificant. All the liabilities are negative and significant, as expected in chapter five; the demand deposits were significant at a 10% level, but term deposits were significant at 1% level. In line with several researchers such as Vasiliou (1995), Rose.et.al (1981) and Floropoulos et al., (2004) the relationship between term deposits and bank profits was found to be positive and significant at a 5%, 10% and 1% level respectively, in both high and low profit banks. The research result is consistent with the researchers mentioned above for high profit banks, and not consistent for low profit banks. The results of demand deposits (high profit banks) are not consistent with those of Vasiliou (1995), Rose et al., (1981) and Floropoulos et al., (2004) who found the relationship to be negative and significant at a 5% level, while positive and significant at 5% and negative and significant at 1%, respectively. However, the results for demand deposits (low bank profits) are consistent with those of Vasiliou (1995), who found the relationship to be negative and significant at 10%, and also Fotopoulos et al., (2004), but at a 1% level. In addition, the results do not agree with those of Rose et al., (1981) who found a positive and significant relationship at a 5% level.

In this context, Vasiliou (1995) and Fotopoulos et al., (2004) found a negative and significant relationship between term deposits and profitability at 5% and 1% respectively, in both high and low profit banks. Therefore, this study's results are consistent with those of previous studies. However, the results of Rose et al., (1981) found a negative and insignificant the relationship between term deposits and profitability. The results of this research are not consistent with this finding. These results can be explained in that loans and term deposits in both high and low profit banks, and also demand deposits in low profit bank influence bank profits. These results confirm hypotheses 1, 2 and 3 in chapter five, respectively. Table 7.8 further confirms that high profit banks earn significantly higher return from loans compared to low profit banks. Thus, the higher return on this asset is sufficient to create profitability differences. Also, on the liability side, high profit banks better achieve lower marginal costs in terms of deposits, but the opposite is true with low profit banks in terms of demand deposits. In addition, table 7.8 show the coefficient of the liability demand deposits was not significant in terms of the profitability of high profitable banks. In addition, the coefficient of loan assets was also not found to be significant in this respect in terms of the profitability of low profit banks.

In addition to this, in terms of the management of assets the results showed that high profit banks employed significantly better asset management strategies than low profit banks. However, the research did not provide evidence for which banks were using better liability management strategies. The findings did not suggest satisfactory support for the idea that high profit banks were applying better asset liability management than low profit banks. In relation to the finding that the size of initial deposits correlated directly with the ability of commercial banks to generate deposits, as it is possible to assert that the greater the former, the greater a bank's ability to increase its core business to generate deposits.

This will depend to some extent of the quantity of individual depositors, as well as to the level of banking awareness among members of the community of potential customers. The more the bank deals with individuals, the greater the volume of core deposits, which leads to a reduction in direct cash transactions. However, lower interest rates on deposits which discourage investors from holding their savings in banks may affect the liquidity of banks, and this will ensure an imbalance between the amounts deposited and the amounts of investment required as loans.

8.4.2 Bank specific independent variables

Table 7.8 illustrates a negative and significant relationship between credit risk and bank profits in both high and low profit banks. This relationship was significant at a 5% level with high profit banks and a 1% level with low profit banks. The coefficients of credit risk were significant in determining bank profits in both low and high profit banks. The table also illustrates that capital had positive and significant effect on bank profits in both low and high profit banks; it was significant at a 10% level with high profit banks and a 1% level with low profit banks. Well-capitalised banks have less need to external funding, and they experience costs in terms of bankruptcy and funding; an advantage which leads to greats profitability (Naceur, 2003). So, the result of this research is consistent with that of several other researchers who also found a positive relationship between bank capital and profits, such as Berger (1994), Berger (1995b), Peryar (1995), Keeley and Furlong (1990), Demirgüç- Kunit and Huizinga (1999), Kunit and Huizinge (1999), Naceur (2003) and Kwan and Eisenbeis (2005). In addition, table 7.9 shows that market share is negative and insignificant on high profit banks, but positive and insignificant with low profit banks. Thus, market share is not significant in determining the profits of both high and low profit banks. There was a positive and insignificant impact of the size of profits in high profit banks, but the coefficient of size is not significant in determining bank profits.

In contrast, there was a negative effect on the profitability of low-profit and high-profit banks, and this finding gives support to the idea of the benefits of economies of scale. The coefficient of size was found to be significant as a determinant of bank profits.

8.4.3 Bank industry independent variables

Concerning the result for industry variables, the level of development of the Libyan banking industry was positive and insignificant in both high and low profit banks. However, concentration was negative and insignificant on the profits of high profit banks, whereas it is positive and insignificant with low profit banks. All the coefficients of the level of development of the Libyan banking industry and concentration are not significant in determining bank profits for either high or low profit banks. So, the results of this research support Barth et al., (2004) and Athanasoglou et al., (2005), who found no connection between the profitability of bank and the structure of the banking industry.

8.4.4 Macroeconomic independent variables

In this regression analysis, table 7.8 reported that per capita income was found to have been negative and significant at a 10% level for both low and high profit banks, leading to the conclusion that it was a significant in determinant of the profitability of both high and low profit banks. The table also shows that inflation was positive on bank profits in banks. However, the coefficient of inflation was not significant in determining the profits of high profit banks, while it is significant at 10% with low profit banks. The conclusion of the effect of macroeconomic variables on bank profits was that low profit banks lose significantly at 10% level returns from the per capita income variable, compared to public banks. In addition, low profit banks earn significantly positive higher returns from an inflation variable at 10% level, compared to high profit banks.

The results of macroeconomic variables also show that statutory liquidity ratio was negative with high profit banks and positive with low profit banks. However, the money supply coefficient was insignificant in both low and high profit banks. In this vein, Kunit and Huizinge (1999) argued that the relationship between profitability and reserves was a negative one. They also suggested that bank profits in developing countries were depressed by official reserves more than in industrialised countries. This impression received some confirmation in the interviews, where most of the respondent stressed that the inertia of legal reserve and liquidity ratio, fixed for a long period of time, reflects a lack of compatibility with the developments and changes that were accruing in the domestic banking sector. These observations together with the research discussed above, the results of the analysis of the quantitative data which were collected from reports published by Libyan Central Bank and Libya's commercial banks, along with certain government departments, and their interpretation has been presented and also supported by reference to the literature reviewed.

8.5 A summary of the results of the analysis of quantitative data

The researcher tried to summarise the results of static panel data models with (1) all Libyan commercial banks, (2) public and private banks, (3) high and low profit banks, as shown in table 8.1, in an attempt to account for the effect of the independent variables (several factors introduced in chapter five) on the dependent variable (profitability of bank portfolios).

Table 8.1 Hypotheses results for all Libyan commercial banks

Independent Variables	The hypothesis of the research	The result of the hypothesis	The result of the research	Comparison with a previous studies
Loans	The hypothesis relating to bank profitability is: Hl: There is a positive relationship between bank assets and the portfolio profits in Libyan commercial banks.	Positive Significant	This result confirmed hypothesis one.	The result is consistent with several researchers such as Rhoades and Rutz, 1982; Bashir, 2000; Fries et al., 2002 and Olajide, 2006 who found the relationship was positive.
Demand deposits	The hypothesis relating to bank profitability is: H2: There is a positive relationship between bank demand deposits and the portfolio profits in Libyan commercial banks.	Negative Significant	This result did not confirm hypothesis two.	The result is not consistent with several researchers such as Naceur and Goaied, 2001; Allen and Rai, 1996 and Holden and El-Bannany, 2006 who found the relationship with bank profits was positive.
Term deposits	The hypothesis relating to bank profitability is: H3: There is a negative relationship between term deposits and the portfolio profits in Libyan commercial banks.	Negative Significant	This result confirmed hypothesis three.	The result is consistent with several researchers such as Naceur and Goaied, 2001; Allen and Rai, 1996 and Holden and El-Bannany, 2006 who found the relationship with bank profits positive.
Bank Capital	The hypothesis relating to firm profitability is: H4: There is a positive relationship between bank capital and the portfolio profits in Libyan commercial banks.	Positive Significant	This result confirmed hypothesis four.	The result is consistent with studies which found a positive relationship between bank capital and bank profitability (e.g. Bourke, 1989; Keeley and Furlong, 1990; Molyneux and Thornton; 1992; Berger, 1994; Berger, 1995b; Peryar, 1995; Demirgüç-Kunt and Huizinga, 1999; Naceur and Goaied (2001), Abreu and Mendes (2002), Naceur, 2003; Goddard et al., 2004; and Kwan and Eisenbeis, 2005; Athanasoglou, et al, 2005; Naceur and Kandil, 2006; Ben Naceur and Goaied, 2008; and Athanasoglou et al.,2008.)

Bank size	The hypothesis relating to firm profitability is: H5: There is a positive relationship between bank size and the portfolio profits in Libyan commercial banks.	Negative Significant	This result did not confirm hypothesis five.	The result was consistent with several researchers such as Boyd and Runkle, 1993; Bourke, 1989; Eichengreen and Gibson (2001) who argued that there is a negative relationship between profitability and the size of the bank. In the same connection, Athanasoglou et al. (2008) reported that the size of a bank is not an important factor to profitability. Also it was not consistent with several researchers (Baumol, 1959; Clarke et al., 1984; Smirlock, 1985, Boyd and Runkle, 1993; Berger et al., 1987; Miller and Noulas, 1997; Eichengreen and Gibson, 2001 and Athanasoglou et al., 2006) who found the relationship between bank size and profitability significantly positive.
Credit Risk	The hypothesis relating to firm profitability is: H6: There is a negative relationship between liquidity risk and the portfolio profits in Libyan commercial banks.	Negative Significant	This result confirmed hypothesis six.	The result was consistent with Duca and McLaughlin, 1990; Miller and Noulas, 1997; Bourke, 1989; Duca and McLaughlin, 1990; Cooper et al., 2003 and Athanasoglou. et al, 2006 who found that credit risk is negatively and significantly related to bank profitability. However, the result was not consistent with Sufian et al., (2009) who found a positive relationship. In this context, Aburime (2006) reported that the relationship between bank risk and profitability is inconclusive.
Market share	The hypothesis relating to firm profitability is: H8: There is a positive relationship between market share and the portfolio profits in Libyan commercial banks.	Negative Significant	This result did not confirm hypothesis eight.	The result is consistent with Fries, 2002; Athanasoglou et al., 2005. However, it was not consistent with Berger (1995a) who argued that there was a spurious positive relationship between profitably and market concentration.
Ownership	The hypothesis relating to firm profitability is: H9: There is a positive relationship between Ownership and the portfolio profits in Libyan commercial banks.	Negative Insignificant	This result did not confirm hypothesis nine.	The result of the research is consistent with Athanasoglou, (2005) who found the relationship was insignificant. In this vein, several authors such as Bourke (1989); Molyneux and Thornton, (1992); Sturm and Williams, (2004); Iannotta et al., (2007) suggested that there was not necessarily a link between profitability and ownership statutes.

Concentration	The hypothesis relating to firm profitability is H10: There is a positive relationship between concentration and the portfolio profits in Libyan commercial banks.	Negative Insignificant	This result did not confirm hypothesis ten.	The result is not consistent with several researchers who found a positive relationship between bank profits and concentration (e.g. Claessens et al. 1997, Berger, 1995a; Bourke, 1989; Molyneux and Thornton, 1992; Demirguc-Kunt and Huizinga, 2001; Demirgue-Kuntanal and Huizinga 2000 Mitton, 2002; Demirguic-Kunt, 2003. But, the result was consistent with Short, (1979, as cited in Barth et al., 2004), Demirguc-Kunt and Huizinga (1999) and Athanasoglou et Al., (2005) who found a strong negative relationship between them. In the same connection, Barth et al. (2004) and Athanasoglou et al. (2006) concluded that the profitability of a bank is not influenced by the structure of the banking industry.
The level of development of the banking sector	The hypothesis relating to firm profitability is: H11: There is a positive relationship between measuring the level of development of banking sector and the portfolio profits in Libyan commercial banks.	Negative Significant	This result did not confirm hypothesis eleven.	The result is consistent with Bashir, (2000); Demirguc-Kunt (2000); Fries and Taci (2002) and Athanasoglou, et al., (2006). However, the result is not consistent with Demirguc-Kunt and Huizinga, (1999); Barth et al., (2004); Athanasoglou et al., (2005) and Fotios and Kosmidou. (2007).
Inflation	The hypothesis relating to firm profitability is: H12: There is a positive relationship between inflation and the portfolio profits in Libyan commercial banks	Negative Significant	This result did not confirm hypothesis twelve.	The result is not consistent with several researchers who have studied bank profitability and found that inflation has a positive relationship with bank profitability (e.g. Revell, 1979; Bourke, 1989; Molyneux and Thornton, 1992; Demirgüç-Kunt and Huizinga 1998; Athanasoglou et al, 2006). However, the result is consistent with Sayilgan and Yildirim (2009) who stated that consumer price index inflation affects profitability indicators negatively in a statistically significant manner.
Business cycle and economic activity	The hypothesis relating to firm profitability is: H 13: There is a positive relationship between economic activity and the portfolio profits in Libyan commercial banks.	Negative Significant	This result did not confirm hypothesis thirteen.	The result is not consistent with several researchers such as Neely and Wheelock (1997); Demirgüç-Kunt and Huizinga, (1998); Demirguc-Kunt and Huizinga (2000). Bikker and Hu, (2002) and Athanasoglou, et al. (2006), who found the correlation between per capita income and bank profitability was positive.
Money supply	The hypothesis relating to firm profitability is: H15: There is a positive relationship between money supply and the portfolio profits in Libyan commercial banks.	positive Significant	This result did not confirm hypothesis fifteen.	

Table 8.2 Hypotheses results for Libyan public banks

Independent Variables	The hypothesis of the research	The result of the hypothesis	The results of the hypothesis	Comparison with a previous studies
Loans	The hypothesis relating to bank profitability is: Hl: There is a positive relationship between bank assets and the portfolio profits in Libyan commercial banks.	Negative Significant	This result did not confirm hypothesis one.	The result was not consistent with Sayeed and Hoque (2008) who found the relationship to be positive and significant at 5% level in the public banks.
Demand deposits	The hypothesis relating to bank profitability is: H2: There is a positive relationship between bank demand deposits and the portfolio profits in Libyan commercial banks.	Negative Significant	The result confirms hypothesis two.	The result was not consistent with Sayeed and Hoque (2007) who found the relationship to be positive and insignificant.
Term deposits	The hypothesis relating to bank profitability is: H3: There is a negative relationship between term deposits and the portfolio profits in Libyan commercial banks.	Negative Insignificant	The result did not confirm hypothesis three.	The result is consistent with Sayeed and Hoque (2007) who concluded that the coefficient was insignificant.
Bank Capital	The hypothesis relating to firm profitability is: H4: There is a positive relationship between bank capital and the portfolio profits in Libyan commercial banks.	Positive Insignificant	The result did not confirm hypothesis four.	The result was not consistent with previous studies, which found a positive relationship between bank capital and bank profitability (e.g. Bourke, 1989; Keeley and Furlong, 1990; Molyneux and Thornton; 1992; Berger, 1994; Berger, 1995b; Peryar, 1995; Demirgüç-Kunt and Huizinga, 1999; Naceur and Goaied 2001, Abreu and Mendes 2002, Naceur, 2003; Goddard et al., 2004; and Kwan and Eisenbeis, 2005; Athanasoglou, et al, 2005; Naceur and Kandil, 2006; Ben Naceur and Goaied, 2008 and Athanasoglou et al.,2008.
Bank size	The hypothesis relating to firm profitability is: H5: There is a positive relationship between bank size and the portfolio profits in Libyan commercial banks.	Positive Significant	The result confirmed hypothesis five.	The result was consistent with several researchers (Baumol, 1959; Clarke et al., 1984; Smirlock, 1985, Boyd and Runkle, 1993; Berger et al., 1987; Miller and Noulas, 1997; Eichengreen and Gibson, 2001 and Athanasoglou et al., 2006) who found the relationship between bank size and profitability significantly positive; and it was not consistent with Boyd and Runkle, (1993); Bourke, (1989); or

				Eichengreen and Gibson (2001) who argued that there was a negative relationship between profitability and bank size. In the same connection, Athanasoglou et al.., (2008) reported that bank size was not an important factor in measuring the effect on profitability.
Credit Risk	The hypothesis relating to firm profitability is: H6: There is a negative relationship between credit risk and the portfolio profits in Libyan commercial banks.	Positive Significant	The results confirmed hypothesis six.	The result was consistent with Sufian et al., (2009) who found a positive relationship. However, the result was not consistent with Duca and McLaughlin, (1990); Miller and Noulas, (1997); Bourke, (1989); Duca and McLaughlin, (1990); Cooper et al., (2003) and Athanasoglou. et al (2006) who found that credit risk was negatively and significantly related to bank profitability. In this context, Aburime (2006) reported that the relationship between bank risk and profitability was inconclusive.
Market share	The hypothesis relating to firm profitability is: H8: There is a positive relationship between market share and the portfolio profits in Libyan commercial banks.	Positive Significant	The result confirmed hypothesis eight.	The result is not consistent with Fries, (2002) Athanasoglou et al., (2005). However, it is consistent with Berger (1995a) who argued that there was a spurious positive relationship between profitably and market concentration.
Ownership	The hypothesis relating to firm profitability is: H8: There is a positive relationship between Ownership and the portfolio profits in Libyan commercial banks.	Positive Significant	The result confirmed hypothesis nine.	The result was consistent with several researchers such as Bourke (1989) and Molyneux and Thornton (1992) who stated that the relationship between profitability and ownership was positive. The result was not consistent with Barth et al., (2004) who suggested that government ownership has a negative correlation with the efficiency of a bank.
Concentration	The hypothesis relating to firm profitability is H10: There is a positive relationship between concentration and the portfolio profits in Libyan commercial banks.	Negative Insignificant	The result did not confirm hypothesis ten.	The result is not consistent with several researchers who found a positive relationship between bank profits and concentration (e.g. Claessens et al. 1997, Berger, 1995a; Bourke, 1989; Molyneux and Thornton, 1992; Demirguc-Kunt and Huizinga, 2001; Demirgue-Kuntanal and Huizinga 2000 Mitton, 2002; Demirguic-Kunt, 2003). But, the result was consistent with Short, (1979, as cited in Barth et al., 2004) and Demirguc-Kunt and Huizinga (1999) who found a strong negative relationship between them. In the same connection, Barth et al., (2004) and Athanasoglou et al., (2006) concluded that the profitability of a bank was not influenced by the structure of the banking industry.

The level of development of the banking sector	The hypothesis relating to firm profitability is: H11: There is a positive relationship between measuring the level of development of banking sector and the portfolio profits in Libyan commercial banks.	Positive Significant	The results confirmed hypothesis eleven.	The result is consistent with Demirguc-Kunt (2000); Fries and Taci (2002) and Athanasoglou, et al, (2006). However, the result is not consistent with Demirguc-Kunt and Huizinga (1999) and Fotios and Kosmidou, (2007).
Inflation	The hypothesis relating to firm profitability is: H12: There is a positive relationship between inflation and the portfolio profits in Libyan commercial banks	Positive Significant	The result confirmed hypothesis twelve.	The result is consistent with several researchers who have studied bank profitability and found that inflation has a positive relationship with bank profitability (e.g. Revell, 1979; Bourke, 1989; Molyneux and Thornton, 1992; Demirgüç-Kunt and Huizinga 1998; Athanasoglou et al, 2006). However, the result was not consistent with Sayilgan and Yildirim (2009) who stated that consumer price index inflation affects profitability indicators negatively in a statistically significant manner.
Business cycle and economic activity	The hypothesis relating to firm profitability is: H 13: There is a positive relationship between economy activity and the portfolio profits in Libyan commercial banks.	Negative Significant	The result did not confirm hypothesis thirteen.	The result is not consistent with several researchers such as Neely and Wheelock (1997); Demirgüç-Kunt and Huizinga, (1998); Demirguc-Kunt and Huizinga (2000). Bikker and Hu, (2002); Athanasoglou, et al. (2006) who found the correlation between per capita income and bank profitability was positive.
Money supply	The hypothesis relating to firm profitability is: H15: There is a positive relationship between money supply and the portfolio profits in Libyan commercial banks.	Negative Significant	The result did not confirm hypothesis fifteen.	

Table 8.3 Hypotheses results for Libyan private banks

Independent Variables	The hypothesis of the research	The result of the hypothesis	The results of the hypothesis	Comparative with a previous studies
Loans	The hypothesis relating to the bank profitability is: Hl: There is a positive relationship between bank assets and the portfolio profits in Libyan commercial banks.	Positive Significant	This result confirmed hypothesis one.	The result is consistent with Sayeed and Hoque (2008) who found positive relationship between assets and bank profits.
Demand deposits	The hypothesis relating to the bank profitability is: H2: There is a positive relationship between bank demand deposits and the portfolio profits in Libyan commercial banks.	Negative Insignificant	The result did not confirm the hypothesis two.	The result was not consistent with Sayeed and Hoque (2007) who found the relationship to be positive and insignificant.
Term deposits	The hypothesis relating to bank profitability is: H3: There is a negative relationship between term deposits and the portfolio profits in Libyan commercial banks.	Negative Significant	The result confirmed the hypothesis three.	The result was not consistent with Sayeed and Hoque (2007) who concluded that the coefficient is insignificant.
Bank Capital	The hypothesis relating to the firm profitability is: H4: There is a positive relationship between bank capital and the portfolio profits in Libyan commercial banks.	positive Significant	The result confirmed the hypothesis four.	The result is consistent with studies who found a positive relationship between bank capital and bank profitability (e.g. Bourke, 1989; Keeley and Furlong, 1990; Molyneux and Thornton; 1992; Berger, 1994; Berger, 1995b; Peryar, 1995; Demirgüç-Kunt and Huizinga, 1999; Naceur and Goaied (2001), Abreu and Mendes (2002), Naceur, 2003; Goddard et al., 2004; and Kwan and Eisenbeis, 2005; Athanasoglou, et al, 2005; Naceur and Kandil, 2006; Ben Naceur and Goaied, 2008 and Athanasoglou et al.,2008.

Bank size	The hypothesis relating to the firm profitability is: H5: There is a positive relationship between bank size and the portfolio profits in Libyan commercial banks.	positive Significant	The result confirmed the hypothesis five.	The result was consistent with several researchers (Baumol, 1959; Clarke et al., 1984; Smirlock, 1985, Boyd and Runkle, 1993; Berger et al., 1987; Miller and Noulas, 1997; Eichengreen and Gibson, 2001 and Athanasoglou et al., 2006) who found the relationship between bank size and profitability significantly positive; and it was not consistent with Boyd and Runkle, 1993; Bourke,1989; Eichengreen and Gibson (2001) who argued that there is a negative relationship between profitability and size of bank. In the same connection, Athanasoglou et al. (2008) reported that size of bank is not an important factor to measure effect on profitability.
Credit Risk	The hypothesis relating to the firm profitability is: H6: There is a negative relationship between credit risk and the portfolio profits in Libyan commercial banks.	Negative Significant	The result confirmed the hypothesis six.	The result was consistent with Duca and McLaughlin, 1990; Miller and Noulas, 1997; Bourke, 1989; Duca and McLaughlin, 1990; Cooper et al., 2003 and Athanasoglou. et al, 2006 who found the credit risk is negatively and significantly related to bank profitability. However, the result was not consistent with Sufian et al. (2009) who found a positive relationship. In this context, Aburime (2006) reported that the relationship between bank risk and profitability is inconclusive.
Market share	The hypothesis relating to the firm profitability is: H8: There is a positive relationship between market share and the portfolio profits in Libyan commercial banks.	Negative Significant	The result did not confirm the hypothesis eight.	The result is consistent with Fries, 2002; Athanasoglou et al., 2005. However, it was not consistent with Berger (1995a) who argued that there was a spurious positive relationship between profitably and market concentration.
Ownership	The hypothesis relating to the firm profitability is: H9: There is a positive relationship between Ownership and the portfolio profits in Libyan commercial banks.	positive Significant	The result did not confirm the hypothesis nine.	The result was consistent with several researchers such as Bourke (1989) and Molyneux and Thornton (1992) who stated that the relationship between profitability and ownership is positive.

Concentration	The hypothesis relating to the firm profitability is H10: There is a positive relationship between concentration and the portfolio profits in Libyan commercial banks.	Negative Significant	The result did not confirm the hypothesis ten.	The result is not consistent with several researchers who found a positive relationship between bank profits and concentration (e.g. Claessens et al. (1997), Berger, 1995a; Bourke, 1989; Molyneux and Thornton, 1992; Demirguc-Kunt and Huizinga, 2001; Demirgue-Kuntanal and Huizinga 2000 Mitton, 2002; Demirguic-Kunt, 2003). But, the result was consistent with Barth et al. (2004) and Athanasoglou et al. (2006) who concluded that the profitability of a bank is not influenced by the structure of the banking industry. In the same connection Short 1979 (as cited in Barth et al, 2004) and Demirguc-Kunt and Huizinga (1999) found a strong negative relationship between them.
the development of banking sector	The hypothesis relating to the firm profitability is: H11: There is a positive relationship between measuring the development of banking sector and the portfolio profits in Libyan commercial banks.	positive Insignificant	The result did not confirm the hypothesis eleven.	The result is consistent with Demirguc-Kunt (2000); Fries and Taci (2002) and Athanasoglou, et al, 2006. However, the result is not consistent with Demirguc-Kunt and Huizinga (1999) and Fotios and Kosmidou (2007).
Inflation	The hypothesis relating to the firm profitability is: H12: There is a positive relationship between inflation and the portfolio profits in Libyan commercial banks.	Negative Significant	The result did not confirm the hypothesis twelve.	The result is not consistent with several researchers who have studied bank profitability and found that inflation has a positive relationship with bank profitability (Revell, 1979; Bourke, 1989; Molyneux and Thornton, 1992; Demirgüç-Kunt and Huizinga 1998; Athanasoglou et al, 2006). However, the result is consistent with Sayilgan and Yildirim (2009) who stated that consumer price index inflation affects profitability indicators negatively in a statistically significant manner.
Business cycle and economy activity	The hypothesis relating to the firm profitability is: H 13: There is a positive relationship between economy activity and the portfolio profits in Libyan commercial banks.	Negative Significant	The result did not confirm the hypothesis thirteen.	The result is not consistent with several researchers such as Neely and Wheelock (1997); Demirgüç-Kunt and Huizinga, 1998; Demirguc-Kunt and Huizinga (2000). Bikker and Hu, 2002; Athanasoglou, et al. (2006) who found the correlation between the per capita income and bank profitability is positive.
Money supply	The hypothesis relating to the firm profitability is: H15: There is a positive relationship between money supply and the portfolio profits in Libyan commercial banks.	Negative Insignificant	The result did not confirm the hypothesis fifteen.	

Table 8.4 Hypotheses results for high profitable Libyan banks

Independent Variables	The hypothesis of the research	The result of the hypothesis	The results of the hypothesis	Comparison with a previous studies
Loans	The hypothesis relating to bank profitability is: Hl: There is a positive relationship between bank assets and the portfolio profits in Libyan commercial banks.	Positive Significant	The result confirmed hypothesis one.	The result is consistent with several researchers such as Rhoades and Rutz, (1982); Bashir, (2000); Fries et al., (2002) and Olajide, (2006) who found the relationship was positive.
Demand deposits	The hypothesis relating to bank profitability is: H2: There is a positive relationship between bank demand deposits and the portfolio profits in Libyan commercial banks.	Negative Insignificant	The result did not confirm hypothesis two.	The result was not consistent with those of Vasiliou (1995), Rose et al., (1981) and Fotopoulos et al, (2004) who found the relationship to be negative and significant at 10%, positive and significant at 5% and negative and significant at 1% respectively.
Term deposits	The hypothesis relating to bank profitability is: H3: There is a negative relationship between term deposits and the portfolio profits in Libyan commercial banks.	Negative Significant	The result confirmed hypothesis three.	The result was consistent with several researchers such as Vasiliou (1995), Rose et al., (1981) and Floropoulos et al., (2004) who found the relationship between term deposits and bank profits is positive and significant at 5%, 10% and 1% respectively.
Bank Capital	The hypothesis relating to firm profitability is: H4: There is a positive relationship between bank capital and the portfolio profits.	Positive Significant	The result confirmed hypothesis four.	The result is consistent with studies who found a positive relationship between bank capital and bank profitability (e.g. Bourke, 1989; Keeley and Furlong, 1990; Molyneux and Thornton; 1992; Berger, 1994; Berger, 1995b; Peryar, 1995; Demirgüç-Kunt and Huizinga, 1999; Naceur and Goaied 2001, Abreu and Mendes 2002, Naceur, 2003; Goddard et al., 2004; and Kwan and Eisenbeis, 2005; Athanasoglou, et al, 2005; Naceur and Kandil, 2006; Ben Naceur and Goaied, 2008 and Athanasoglou et al., 2008.
Bank size	The hypothesis relating to firm profitability is: H5: There is a positive relationship between bank size and the portfolio profits.	Positive Insignificant	The result did not confirm hypothesis five.	The result was consistent with Athanasoglou et al. (2008) who reported that bank size was not an important factor to measure effect on profitability. In the same connection, the result was not consistent with several researchers (e.g. Boyd and Runkle, 1993; Bourke, 1989; Eichengreen and Gibson, 2001) who

				argued that there was a negative relationship between profitability and bank size. Also it was not consistent with several researchers (Baumol, 1959; Clarke et al., 1984; Smirlock, 1985, Boyd and Runkle, 1993; Berger et al., 1987; Miller and Noulas, 1997; Eichengreen and Gibson, 2001 and Athanasoglou et al., 2006) who found the relationship between bank size and profitability significantly positive.
Credit Risk	The hypothesis relating to firm profitability is: H6: There is a negative relationship between credit risk and the portfolio profits.	Negative Significant	The result confirmed hypothesis six.	The result was consistent with Duca and McLaughlin (1990), Miller and Noulas (1997) Bourke, (1989); Duca and McLaughlin, (1990); Cooper et al. , (2003) and Athanasoglou et al., (2006) who found the credit risk was negatively and significantly related to bank profitability. However, the result was not consistent with Sufian et al., (2009) who found a positive relationship. In this context, Aburime (2006) reported that the relationship between bank risk and profitability is inconclusive.
Market share	The hypothesis relating to firm profitability is: H8: There is a positive relationship between market share and the portfolio profits.	Negative Insignificant	The result did not confirm hypothesis ten.	The result is not consistent with Fries, (2002) or Athanasoglou et al., (2005).
Concentration	The hypothesis relating to firm profitability is H10: There is a positive relationship between concentration and the portfolio profits.	Negative Insignificant	The result did not confirm hypothesis ten.	The result was not consistent with several researchers who found a positive relationship between bank profits and concentration (e.g. Claessens et al. 1997, Berger, 1995a; Bourke, 1989; Molyneux and Thornton, 1992; Demirguc-Kunt and Huizinga, 2001; Demirgue-Kuntanal and Huizinga 2000 Mitton, 2002; Demirguic-Kunt, 2003). But, the result was consistent with Short 1979 (as cited in Barth et al., 2004) and Demirguc-Kunt and Huizinga (1999) who found a strong negative relationship between them. In the same connection, Barth et al., (2004) and Athanasoglou et al., (2006) concluded that the profitability of a bank is not influenced by the structure of the banking industry.

The development of banking sector	The hypothesis relating to firm profitability is: H11: There is a positive relationship between measuring the development of banking sector and the portfolio profits.	Positive Insignificant	The result did not confirm hypothesis eleven.	The result was consistent with Demirguc-Kunt (2000); Fries and Taci (2002) and Athanasoglou, et al., 2006. However, the result was not consistent with Demirguc-Kunt and Huizinga (1999) and Fotios and Kosmidou (2007).
Inflation	The hypothesis relating to firm profitability is: H12: There is a positive relationship between inflation and the portfolio profits.	Positive Insignificant	The result did not confirm hypothesis twelve.	The result was consistent with several researchers who have studied bank profitability and found that inflation has a positive relationship with bank profitability (e.g. Revell, 1979; Bourke, 1989; Molyneux and Thornton, 1992; Demirgüç-Kunt and Huizinga 1998; Athanasoglou et al., 2006).
Business cycle and economic activity	The hypothesis relating to firm profitability is: H 13: There is a positive relationship between economy activity and the portfolio profits.	Negative Significant	The result did not confirm hypothesis thirteen.	The result was not consistent with several researchers such as Neely and Wheelock (1997); Demirgüç-Kunt and Huizinga, (1998); Demirguc-Kunt and Huizinga (2000). Bikker and Hu, 2002; Athanasoglou, et al., (2006) who found the correlation between per capita income and bank profitability to be positive.
Money supply	The hypothesis relating to firm profitability is: H15: There is a positive relationship between money supply and the portfolio profits.	Negative Insignificant	The result did not confirm hypothesis fifteen.	
Variable statutory liquidity ratio	The hypothesis relating to firm profitability is: H17: There is a negative relationship between Statutory Liquidity Ratio and the portfolio profits.	Negative Insignificant	The result did not confirm hypothesis seventeen.	The result was not consistent with Ogunleye (1995), Kunit and Huizinge (1999) and Aburime (2008) who stated that the relationship between profitability and liquidity ratio was negative.

Table 8.5 Hypotheses results for less profitable Libyan banks

Independent Variables	The hypothesis of the research	The result of the hypothesis	The results of the hypothesis	Comparison with a previous studies
Loans	The hypothesis relating to bank profitability is: Hl: There is a positive relationship between bank assets and the portfolio profits in Libyan commercial banks.	Positive Insignificant	The result did not confirm hypothesis one.	The result is consistent with several researchers such as Rhoades and Rutz, (1982); Bashir, (2000); Fries et al. (2002) and Olajide, (2006) who found the relationship to be positive.
Demand deposits	The hypothesis relating to bank profitability is: H2: There is a positive relationship between bank demand deposits and the portfolio profits in Libyan commercial banks.	Negative Significant	The result confirmed hypothesis two.	The result was consistent with that of Vasiliou (1995) who found the relationship to be negative and significant at 10%, and also Floropoulos et al. (2004), but at 1% level. In addition, the results were not consistent with Rose et al. (1981) who found the relationship to be positive and significant at 5%.
Term deposits	The hypothesis relating to bank profitability is: H3: There is a negative relationship between term deposits and the portfolio profits in Libyan commercial banks.	Negative Significant	The result confirmed hypothesis three.	The result was not consistent with several researchers such as Vasiliou (1995), Rose et al. (1981) and Floropoulos et Al. (2004) who found the relationship between term deposits and bank profits to be positive and significant at 5%, 10% and 1%.
Bank Capital	The hypothesis relating to firm profitability is: H4: There is a positive relationship between bank capital and the portfolio profits in Libyan commercial banks.	Positive Significant	The result confirmed hypothesis four.	The result was consistent with studies which found a positive relationship between bank capital and bank profitability (e.g. Bourke, 1989; Keeley and Furlong, 1990; Molyneux and Thornton; 1992; Berger, 1994; Berger, 1995b; Peryar, 1995; Demirgüç-Kunt and Huizinga, 1999; Naceur and Goaied (2001), Abreu and Mendes (2002), Naceur, 2003; Goddard et al., 2004; and Kwan and Eisenbeis, 2005; Athanasoglou, et al., 2005; Naceur and Kandil, 2006; Ben Naceur and Goaied, 2008 and Athanasoglou et al., 2008.

Bank size	The hypothesis relating to firm profitability is: H5: There is a positive relationship between bank size and the portfolio profits in Libyan commercial banks.	Positive Significant	The result confirmed hypothesis five.	The result was consistent with several researchers (e.g. Baumol, 1959; Clarke et al., 1984; Smirlock, 1985, Boyd and Runkle, 1993; Berger et al., 1987; Miller and Noulas, 1997; Eichengreen and Gibson, 2001 and Athanasoglou et al., 2006) who found the relationship between bank size and profitability significantly positive; and it was not consistent with Boyd and Runkle, 1993; Bourke,1989; Eichengreen and Gibson (2001) who argued that there was a negative relationship between profitability and bank size. Athanasoglou et al. (2008) reported that bank size was not an important factor to measure effects on profitability.
Credit Risk	The hypothesis relating to firm profitability is: H6: There is a negative relationship between credit risk and the portfolio profits in Libyan commercial banks.	Negative Significant	The result confirmed hypothesis six.	The result was consistent with Duca and McLaughlin (1990), Miller and Noulas (1997) Bourke, (1989); Duca and McLaughlin, (1990); Cooper et al. (2003) and Athanasoglou et al. (2006) who found that credit risk was negatively and significantly related to bank profitability. However, the result was not consistent with Sufian et al. (2009) who found a positive relationship. In this context, Aburime (2006) reported that the relationship between bank risk and profitability is inconclusive.
Market share	The hypothesis relating to firm profitability is: H8: There is a positive relationship between market share and the portfolio profits in Libyan commercial banks.	Positive Insignificant	The result did not confirm hypothesis eight.	The result was not consistent with Fries, (2002); Athanasoglou et al., (2005). However, it was consistent with Berger (1995a) who argued that there was a spurious positive relationship between profitably and market concentration.
Concentration	The hypothesis relating to firm profitability is H10: There is a positive relationship between concentration and the portfolio profits in Libyan commercial banks.	Positive Insignificant	The result did not confirm hypothesis ten.	The result was not consistent with several researchers who found a positive relationship between bank profits and concentration (e.g. Claessens et al., 1997, Berger, 1995a; Bourke, 1989; Molyneux and Thornton, 1992; Demirguc-Kunt and Huizinga, 2001; Demirgue-Kuntanal and Huizinga 2000 Mitton, 2002; Demirguic-Kunt, 2003. But, it is consistent with Barth et al. (2004) and Athanasoglou et al. (2006) who concluded that

				the profitability of a bank is not influenced by the structure of the banking industry. In the same connection, the result was consistent with Short, (1979, as cited in Barth et al. 2004) and Demirguc-Kunt and Huizinga, (1999) who found a strong negative relationship between them.
the development of banking sector	The hypothesis relating to firm profitability is: H11: There is a positive relationship between measuring the development of banking sector and the portfolio profits in Libyan commercial banks.	Positive Insignificant	The result did not confirm hypothesis eleven.	The result was consistent with Bashir, (2000); Demirguc-Kunt (2000); Fries and Taci (2002) and Athanasoglou, et al. (2006). However, the result was not consistent with Demirguc-Kunt and Huizinga, (1999); Barth et al., (2004); Athanasoglou et al., (2005) and Fotios and Kosmidou, (2007).
Inflation	The hypothesis relating to firm profitability is: H12: There is a positive relationship between inflation and the portfolio profits in Libyan commercial banks.	positive Significant	The result confirmed hypothesis twelve.	The result was consistent with several researchers who have studied bank profitability and found that inflation had a positive relationship with bank profitability (e.g. Revell, 1979; Bourke, 1989; Molyneux and Thornton, 1992; Demirgüç-Kunt and Huizinga 1998; Athanasoglou et al, 2006). However, the result is consistent with Sayilgan and Yildirim (2009) who stated that consumer price index inflation affects profitability indicators negatively in a statistically significant manner.
Business cycle and economy activity	The hypothesis relating to firm profitability is: H 13: There is a positive relationship between economy activity and the portfolio profits in Libyan commercial banks.	Negative Insignificant	The result did not confirm hypothesis thirteen.	The result was not consistent with several researchers such as Neely and Wheelock (1997); Demirgüç-Kunt and Huizinga, (1998); Demirguc-Kunt and Huizinga (2000). Bikker and Hu, (2002); Athanasoglou, et al. (2006) who found the correlation between per capita income and bank profitability to be positive.
Money supply	The hypothesis relating to firm profitability is: H15: There is a positive relationship between money supply and the portfolio profits in Libyan commercial banks.	Negative Insignificant	The result did not confirm hypothesis fifteen.	

Variable statutory liquidity ratio	The hypothesis relating to firm profitability is: H17: There is a negative relationship between statutory liquidity ratio and the portfolio profits in Libyan commercial banks.	Positive Insignificant	The result did not confirm hypothesis sixteen.	The result was not consistent with Ogunleye (1995), Kunit and Huizinge (1999) and Aburime (2008) who stated that the relationship between profitability and liquidity ratio was a negative.

Chapter nine

Discussion of the qualitative data

9.3.1 The impact of credit risk on the profits of Libyan commercial banks

9. Discussion of the qualitative data

9.1 Introduction

It was apparent from the literature reviewed that profits banks are affected by several factors, whether internal or external. In the survey of managers carried out for this research, the questions asked were categorised into five main categories: banking risks; restructuring in the banking sector; banking services and technology; Libyan banking environmental factors; and the Libyan Central Bank, in order to investigate their impact on bank profits. In order to triangulate the findings of participants' opinions, managers at each of the banks surveyed were also interviewed. Thus, the questions designed for managers were developed with the direct intention of focusing on their views about the effects that may have resulted from these factors. The researcher will discuss the results of analysis of the qualitative data collected, and their interpretation will be presented, with support and reference to the literature reviewed.

9.2 Discussion of the results

According to the majority of the respondents, the factors which are mentioned above definitely impacted on their banks.

9.3 Banking risks

The researcher divided banking risks into three subcategories of risks, according to the qualitative data which was collected from the respondents, as follow. There was almost total agreement among the managers surveyed with regard to the seventh question, which related to the relationship between loan risks and bank profits. They all definitely agreed that loan risks directly influenced portfolio profits.

Martin (1999) emphasised that a major element in the composition of assets is the bank's loan portfolio. In this context, respondent B4 said that *"Management of the loans portfolio is the most important function in the operation of a commercial bank because it generates the bank's primary source of revenue".* Owing to the innate risks in lending and the necessary limitations of the statutory system set by lending authorities, the competition is sharpened for each institution to effectively manage its loan portfolio. Libyan commercial banks were involved in the support of large companies and public institutions and individuals. Thus, banks had not been unable to recover several of these loans, and it was now very difficult, if not impossible, to recover the money, which was granted in the form of loans. This had a negative impact on the financial positions of banks and their ability to give more credit. As a result, the banks contributed to several areas of high risk, on the one hand they did not take into account the banking commitment norms, and the requirements of caution. Changes in credit risk may reflect changes in the health of a bank's loan portfolio, which may affect the profitability of the banks. Duca and McLaughlin (1990) indicated that bank profitability was affected by variations in credit risk. In addition they stated that lower bank profitability was related to increased exposure to risk of credit. The majority of the respondents stated that the percentage of bad debts to loans in commercial banks could sometimes amount to more than half of the loans granted. This had affected the portfolios of the banks. On the other hand, the shortage of deposit terms has affected the banks' ability to expand their lending. In addition, the pursuit of non-performing loans was not sufficiently followed-up, even though it would have been in the interest of the banks to assist bad loans with some expert advice, thus ensuring a better return on loans. Thus, commercial banks face this problem; they have deducted a large allocation of their profits to face expected losses, as a result of non-payment of these loans. Hence, bank profits were affected by large deducted allocations.

So, the majority of respondents referred to the situation that because loans had formerly been directed towards building houses, later the direction was towards the granting of mortgage loans for housing for low-income and middle-concessional terms. At the time of the study, this was still the policy followed, despite the reduction of the value of loans granted for this purpose, due to the fact that other banks compete with commercial banks in granting loans for individuals for different purposes.

An empirical study by Miller and Noulas (1997) found several financial institutions had lower profitability due to factors such as a high accumulation of unpaid loans and high-risk loans. The greater the exposure of Libyan commercial banks to high-risk loans, the higher the accumulation of unpaid loans, and thus the greater the impact on their profitability. In this respect, the majority of the respondents referred to a total of four factors: First, there were limited credit checks by banks of their clients before granting loans, both with respect to analysis of their financial position, or in terms of personal interviews with them from time to time, or the suitability of the guarantees offered for the loan. Second, the commercial banks were too slow in their follow-up to the client before, during, and after granting loans, and did not monitor the movements in the account to assess the suitability of the client's financial situation for a loan; they also often did not require feasibility studies.

Third, the commercial banks were reluctant to consider the demands of clients with regard to access to additional funding for the continuation of a project, to avoid any deflating. Fourth, frequent disputes and differences between the partners in companies' often lead to a lack of attention to paying the debt due to the suspension of the project. Thus, the variations in profitability between banks were mostly due to variations in credit risk, and as a result increased exposure to credit risk was normally associated with decreased bank profitability (Duca and McLaughlin, 1990).

The commercial banks usually resorted to the simplest methods to guarantee gains from loans, such as investment in the Central Bank of Libya in the form of deposits. This process by commercial banks had an effect on their portfolio profits and also on their obligation towards the country's economic development. However, several of the respondents such as A1, B3 and B4 argued that the reason for this was that the commercial banks feared the expansion of loans at the expense of demand deposits, which was regarded as a danger to the liquidity of banks, which is reflected in the surplus of liquidity found in Libyan commercial banks. Cooper et al. (2003) also demonstrated that the performance of the institution was affected by the health of a bank's loan portfolio, as a result of changes in credit risk.

So, this research is constant with Miller and Noulas (1997) who found a negative relationship between bank profitability and credit risk. In this context, Bourke (1989) and Molyneux and Thornton (1992) emphasised that among others factors they also found better quality management to be among the main contributors to increased profitability. Thus, respondent B5 stated that *"commercial banks should take the necessary actions to support it in order to further increase their profits".* So, the result of this research concluded that poor assets quality (loans) was the main cause of reductions in bank profits, but not liquidity risk.

Thus, there is a need for risk management in the Libyan banking sector to support the nature of the banking business. This requirement includes good quality management, because this has a direct impact on bank profits and enables banks to avoid problems with the granting of loans.

9.3.2 The impact of liquidity risk on the profits of Libyan commercial banks

In the second subcategory, all the respondents believed that liquidity risks did not have an influence on portfolio profits.

In contrast, Libyan commercial banks were facing the problem of surplus liquidity. As seen in the literature review, liquidity risks have an impact on banks` portfolio behaviour, in terms of both profits and the composition of portfolios. In this vein, Molyeneux and Thornton (1992) indicated that a negative relationship exists between the level of liquidity and bank profitability. Pilbeam (2005) explains that banks tend to maintain low liquidity levels because liquid assets earn less interest than loans, which are more illiquid. All the respondents stressed that Libyan commercial banks did not face any problem of lack of liquidity; on the contrary, they were facing the problem of excess liquidity. The respondents attributed this liquidity surplus to the lack of employment in the domestic market for small businesses and the limited fields of short-term investments. In addition, the majority of the respondents emphasised that the impact of liquidity ratio on the ability of commercial banks to grant credit has a middling medium influence, and is due to the fact that the respondents referred to total of four factors which lead to effects on the ability of commercial banks to expand their banking credit, despite a surplus of liquidity, which can be summarised as follow: First, there were limited areas of investment for the liquidity of commercial banks, which ensure their profitability and provide them with adequate guarantees.

Second, commercial banks resort to the simplest method to ensure their gains, despite their weakness, through investment in term deposits with the Central Bank of Libya.

Third, commercial banks do not have the ability to activate the cash they hold and use it optimally. In addition, respondents such as A1, B1, B3, B4 and B7 stated that commercial banks feared to expand into granting banking credit from demand deposits, which constituted a high proportion of the volume of bank deposits, and this constitutes the seriousness of the liquidity problem for the banks; in the case of an increase in granting credit, this increase is then reflected in the surplus of liquidity.

In this context, the research is not constant with Bourke (1989) who stated that the relationship between bank profitability and level of liquidity is positive and significant. On the other hand, it is consistent with other researchers such as Molyneux and Thornton, (1992) who found the opposite result. Libyan commercial banks were obliged to maintain a high level of liquidity for many reasons, including the unavailability of forms of investment other than loans and credit facilities to limited investment channels, and the weakness of the guarantees provided for beneficiaries, as well as the problem that some legislation prevented certain banks from competing equally with others.

In this context, poor management may not actually be financially fatal for a bank, and organisations are not dependent on one factor alone unless unfavourable economic conditions also have an adverse effect on the bank and thus lead to capital outflows or unexpected loan losses, (Gambs, 1977). Respondent B3 stated that *"Libyan commercial banks have focused their portfolios on liquid assets, in order to contribute to financing economic development projects".* Thus, liquid assets are distinguished by return of interest, safety and liquidity. However, during some abnormal economic periods Treasury bonds are not so expensive.

The Central Bank excluded bonds and Treasury bills, when calculating the liquidity ratio for commercial banks. Liquidity increases resulted from the huge increases in revenues of oil exports. This required work to neutralise the effects of liquidity expansion, and reduce these pressures on inflation. Angbazo (1997) suggested that in order to reduce their liquidity risk, banks should invest their liquid funds in two ways, firstly, in short-term funds and, secondly, in cash. In addition, Athanasoglou et al. (2006) suggested that to improve profitability, banks should improve operating efficiency and risk management by using new standards. The research noted that the majority of Libyan commercial banks had suffered from a high volume of liquidity compared to legal liquidity limit specified by the Central Bank of Libya.

Kumar (2008) stated that certain problems were caused by poor liquidity management, which was a problem facing banks worldwide, however, according to the findings of this study, Libyan commercial banks did not have these problems. Thus, the management of liquidity risk is very important to these banks. As we have seen above, the research discussed the results of analysis of the qualitative data collected from interviews with managers, and their interpretation has been presented and also supported by reference to the literature reviewed.

9.3.3 The impact of investment risks on banks' portfolio profits

In the third subcategory, the results of the interviews show quite clearly that there was consensus among all of the managers regarding the level of investment risks and their impact on bank profits. The failure of some banks was due to substandard credits, which were granted to their customers. Thus, a credit portfolio affects bank profitability negatively or positively in terms of either its either size or composition, (Olajide, 2006). In this vein, all of the respondents believed that the investment risks of Libyan commercial banks had an impact on banks' portfolio behaviour, in terms of their portfolio profits. Thus, they referred to several reasons for commercial banks' reluctance to invest their money in order to reduce bank risk. Respondent B7 said that *"investment risks played an important role in the orientation of savings banks towards a safer area. Nevertheless, commercial banks ask too much in terms of security in order to reduce their risks, and invested money leads to the reluctance of banks to invest in of some areas of investment".* This thus affects the value of their profits. According to the respondents Libyan commercial banks curtailed their lending operations and advances and confined themselves to three factors when considering loans: Firstly, the inability of some borrowers to repay; second, many borrowers obtaining huge amounts of money using fraudulent means, and third, the procedures to take out loans were too easy.

Respondent B1 stated that *"the investment policies of commercial banks are affected by changes in economic conditions, but also seem to be affected by changes in the political sphere, whether internal or external".* In this vein, the research noted that the loan portfolios of Libyan commercial banks were affected by changes in credit risk. Consequently, credit risk was reflected in the performance of banks. Several researchers have argued that increased institutional stability raises profits and an increase in market shares will result from better management (Athanasoglou et al., 2005; and Berger, 1995a). In this context, the majority of the respondents emphasised that real distribution of risk in Libyan commercial banks does not happen, unless there is expert and conscious management, which is aware of the state of the market and policy-making investment portfolios.

This theory is based on good bank management, and also on study plans which allow them to start good quality portfolios, which are the best investment. This was supported by Athanasoglou et al. (2005) who found that bank-level management had an impact on bank profitability. The researcher noted that the final effect of expanding the frequency of substandard loans in the credit portfolio of banks lead to lowering the profitability of the commercial banks, and may also have affected their budgets. So, Libyan commercial banks can potentially increase their profitability by improving the quality their management, in order to avoid additional risks, which are faced when deciding to grant loans. On the other hand, the respondents referred to the ratio of the actual reserves at commercial banks being larger than the legal ratio of the reserve, which was determined by the Central bank of Libya. This is reflected in a huge volume of deposits, especially demand deposits and the inability of commercial banks to invest. A number of reasons which hinder investment were proposed by the majority of the respondents, including: First, the instability of the country's economic structure; second, an economically dominant public sector; third, restrictions on the investment policy of

commercial banks and directions as to the areas in which they could invest, all of which factors determine the ratio of each investment, whether with public and private banks.

Other respondents, such as B1, B2, B3, B5 and B7, referred to rapid changes in legislation which affect economic life in Libya, in addition to a range of bureaucratic orders from a variety of conflicting sources. All of this leads to problems of investment in Libyan commercial banks, and this affected commercial banks in terms of their profits, whether to banks themselves or projects borrowing from them, it lowered activity and affected the economic life in the country. Hence, this affected the profits of Libyan commercial banks.

In addition, the respondents emphasised that there was a need to review and simplify the tax system and improve its efficiency, in order to make it more stable, transparent and fair, and also the need for a unification of corporate tax at one suitable rate, and the exclusion of distributed profits and allocations to constituent companies from taxable income. Lastly, the majority of the respondents believed that a lack of financial incentives in Libyan commercial banks had a negative impact on the ability of banks to attract and retaining capable and qualified staff, also in addition to a negative effect on the productivity of workers in the banking sector, and also impartiality in the performance of their daily business.

In the same vein, Athanasoglou et al. (2005) reported that bank profitability is affected by growth in labour productivity. The research noted that the relationship between investment risks and bank profits was negative. It can therefore be assumed that it played an important role in the orientation of savings banks towards safer areas, and thus this impacted on portfolio profits.

9.4 The impact of economic reform and the restructuring of the banking sector on bank profits

In their responses to the fourth question, which concerned the restructuring of the banking sector and economic reforms, all the respondents stated that they had a relationship with bank profits. Thus, they stated it was an important issue.

The restructuring in the banking sector and economic reforms were seen to be very important factors in explaining the profitability of banks. Thus, the respondents believed that the time had come for restructuring in the banking sector, because it had become an important issue to develop Libyan commercial banks. So, they referred to two subcategories of restructuring, which would have an impact on improving the profits of banks.

9.4.1 Restructuring in the banking sector and bank profits

The first subcategory is restructuring in the banking sector. As a result, all respondents agreed that for Libya's economic reforms to succeed there was a need also to find a stronger banking system stronger which is more efficient, depending on the rules of the market. In this context, the majority of the respondents referred to a total of four important requirements to improve portfolios profits, as follow: first, restructuring of the banking system; second, strengthening banking supervision; third, updating the local payment system; in addition, respondent B4 added a fourth which is *"amendments in both the legal and regulatory frameworks".* Also they emphasised that there was an urgent need for restructuring in the banking sector, in the light of the ownership of the Central Bank of Libya of major commercial banks. The first step in this area was seen to be the transfer of ownership of these banks to independent governance, as the primary concern of restructuring the banking system.

According to this arrangement, respondent B2 stated that *"the Central Bank is responsible for banking supervision, without having a direct role in the process of restructuring / privatization"*. This included responsibilities to ensure the validity and integrity of the new owners of banks entering the private sector. The Libyan banking system was considered to be still weak and in need of comprehensive restructuring. Although the objectives of the Central Bank of Libya concerning the privatization of public commercial banks were seen as laudable goals, the strategy that focused on the transfer of these commercial banks involved serious risks. The desired result was represented in the creation of the banking sector being highly competitive and active. Thus, the majority of the respondents outlined a total of three points for restructuring of banking represents, as follow: first, protect the value and stability of banks during the transitional period prior to restructuring / privatization; second, organization "rules Care diligence" and "monitoring of compliance in each bank"; also respondent B6 added other point, which was the implementation of a strategy for the formulation of each bank. In this vein, many studies have found that financial development has a very important impact on bank performance, such as Demirguc-Kunt (2000), who found significantly higher levels of bank profits and margins. Also in this context, Athanasoglou, (2005) inducted that the increasing levels of financial reform that is closely related to general economic growth according to the improvement in the structure of the credit institutions. In other hand, Fotios and Kosmidou (2007) found that development of the banking sector had a negative relationship with return on average assets in both domestic and foreign banks. In addition, the majority of the respondents stated that the financial restructuring of banks, including the management of non-performing assets, would be for the purpose of improving the financial structure of these banks, in order to enable them to be viable to continue at the financial level, and in order to have a good level of solvency, liquidity and profitability.

In order to maintain the health of the banking system, it should be noted that respondents felt that important credit allocations should be made on the basis of commercial considerations, and that social needs should be dealt with through other channels. The majority of the respondents suggested that there was a need for the Central Bank of Libya to develop indirect instruments of monetary policy, beginning with the issuance of other instruments based on certificates of deposit, and measures aimed at revitalizing the market and the circulation of currency between banks, as a first step towards the establishment of open market operations.

The research suggests that this would allow commercial banks to invest surplus liquidity in profitable assets, thus increasing the volume of their portfolios and profits. In addition, the majority of the of the respondents stated that there were several needs, which were to enhance the bank's role in the monetary policy committee responsible for basic policy decisions, to improve the monetary policy framework by strengthening its database, and to enhance the potential of the Central Bank in the control of economic activities.

According to the respondents, there were other reforms that needed to be undertaken, including the reorganization of the bank in accordance with the requirements of the new banking Law, and the shift expected in the local economic environment. This reform was seen to lead gradually to the restructuring of the banking system and to creating the best conditions for the allocation of credit. Thus, the research suggests that policy should be put in place to support and strengthen the operations of monetary policy through the development of policy instruments connected with indirect monetary policy, and the reorganization of the Central Bank of Libya. In order to improve the efficiency of indirect monetary policy tools, there was seen to be a need to establish a competitive banking system and a market which was good and appropriate for mutual banking transactions.

In this context, respondent A2 stated that *"it should also relax the current restrictions that impede the ability of banks to invest abroad in order to reduce excess liquidity in banks, and also this is a prerequisite to give an initial boost to the activities of the banking sector to raise their efficiency".* So, the result of this research shows that the restructuring in the banking sector will affect bank profitability positively. As a result, it is a very important factor in explaining the profitability of Libyan commercial banks.

9.4.2 Economic reform programmes and bank profits

The second subcategory was the improvement of economic reform programmes. The process of economic reform in Libya started late; however, although economic reforms were seen to have been allocated on more than one level, they had not achieved the desired results in full. Despite, these reforms being based on the restructuring of the public sector's role in the national economy, and designed to strengthen the role of the private sector, through programmes to encourage investment and trade, these reforms to date had not yielded the desired result of major economic improvements. All the respondents referred to important steps required in removing obstacles that impede foreign investment, through the issuance of certain laws to encourage it, such as the establishment of a special body to encourage foreign investment during the year 2000. So, the respondents emphasised that this body had had a positive effect on commercial banks in terms of development of their services.

Respondents also indicated that the Central Bank had issued several laws regarding the opening of bank accounts by foreign companies. All these procedures had increased the size of the portfolios of Libyan commercial banks, and were seen to be likely to have a positive impact by increasing their profitability. In addition, respondent B3 emphasized that, *"the Government continues their efforts aimed at reforming the trade regime, including the integration of all taxes and duties on imports within the tariff rates".*

The advantages of consolidating this reform through a commitment to a multilateral effort to join the World Trade Organization must be emphasized. This will contribute to reducing the uncertainty surrounding economic policy and investor confidence. Also on the structural side, the Government had taken several measures, which had achieved an impact on Libyan commercial banks.

So, the majority of the respondents emphasised the importance of these procedures, which has been much progress in recent years to liberalize the economy, including: the standardization of the exchange rate, the issuance of a new banking law, strengthening the role of the Central Bank of Libya, and opening the banking sector to competition between domestic and foreign banks, privatization of several state-owned enterprises and simplifying the application procedures for doing business.

In this context, the Government abolished customs duty exemptions granted to public institutions; liberalized most prices; removed restrictions on foreign trade; and allowed foreign investment in several sectors. Alongside encouraging the private sector to take the lead in infrastructure development and implementation of the state's programme in the field of investments, and in the framework of partnership arrangements between domestic and foreign banks by taking appropriate preventative measures, the results of this research concluded that improvement in economic reform programmes will affect bank profitability positively. Thus it is a very important factor in explaining the profitability of Libyan commercial banks.

9.5 The impact on bank profits of banking services and technology

In answers to the third question, the majority of the respondents felt that banks were affected by banking services and technology, thus there was consensus in opinion. Banking services and technology are very important factors in explaining the profitability of banks.

In this respect, the respondents thought that a decline in services and technology in Libyan commercial bank impacted on bank portfolios, in terms of their profits. Financial services are a critical part of any economy, with banks being the most important component of the industry (Schachler et al, 2007).

9.5.1 Banking services and their impact on bank profits

As to the first subcategory, banking services, Libyan commercial banks suffer from a low level of banking services because they rely mainly on providing traditional manual banking services. In this context, Fries (2002) stated that banks offer competitive margins on deposits and make comfortable margins on loans that are achieved by reforms in banking policy and significant progress in banking.

The style of providing these services by Libyan commercial banks had not had major development during the past forty years since their establishment. Although there have been several attempts by several commercial banks to develop their service levels, they often faced difficulties, as the development processes were too slow, and hence did not achieve their goals. In this context, respondent B5 stated that *"the private commercial banks, especially the Bank of Commerce and Development, have made more developments than the public banks in spite of the novelty of the recent Libyan banking market".* A number of factors have contributed to the phenomenon of the decline of the services levels of Libyan commercial banks.

The majority of the respondents stressed several factors that had a direct impact on portfolio profits, which were: firstly, clients were required to spend a long time withdrawing funds from commercial banks, especially at busy times such as religious events and holidays. The second was the difficulties facing citizens when they wanted to open accounts with commercial banks, and subsequently obtain cheque books. Thus, the client might have to go the back to the bank more than once to complete the service.

Third, automatic teller machines were not available outside commercial banks for cash withdrawals out of office hours. In addition the majority of the respondents stated that banks were failing to provide statements of accounts for clients on a regular basis, and pointed to the emergence of the role of personal relationships and nepotism as an important factor in the treatment of the clients of commercial banks. In addition, respondent A2 stated, *"the majority of commercial banks do not have special departments for the development of banking services, or departments responsible for the marketing of banking services"*.

Although these departments were to be found in several banks, they did not have any specific role and their tasks were not determined or made clear. In this context within services, the majority of the respondents believed that the commercial banks, whether public or private, were not able to compete with foreign banks. This was due to their low level of banking services, and the failure to use modern technologies in the provision of services. They also referred to privatisation of the commercial banks from the public to the private sector as having the potential to lead to a better level of services, to make them more competitive and allow them to introduce innovative new services.

Thus, the research noted that Libyan commercial banks had not worked to keep pace with global developments taking place in the field of banking services. In this context, they referred to deregulation of banking services, in which contact they discussed the important role of deregulation of banking services on portfolio profits. The purpose of decision number 1/2005 of the Central Bank, which initiated the deregulation of banking services, was to consolidate the principle of transparency among commercial banks. After this decision, all commercial banks reconsidered their commission levels and prices for banking services.

Thus, each commercial bank set the price and commissions for its banking services, and also all commercial banks were willing to negotiate commission rates with senior customers in order to achieve the satisfaction of customers while increasing their portfolio profits. Thus, they referred to a total of three important points necessary to improve the portfolios of commercial banks through deregulation of banking services, which were: first, increases in the volume of deposits; second, increases in the size of equity; third, increases in the volume of investment in profitable assets; in addition to these, respondent B2 stated that *"development and diversification of banking services."* In addition, respondent B3 stated that commercial banks needed to, *"reduce their expenditure as much as possible".* Therefore, the results of this research show that banking services affect portfolio profitability negatively, due to the weakness of these services, thus they are very important factors in explaining the profitability of Libyan commercial banks.

9.5.2 The impact of banking technology on bank profits

The second subcategory tested was technology. The rapidity of technological developments in banks has allowed commercial banks to compete and diversify in their bank operations. Thus, the Libyan banking business has become more complicated. In this connection, Boyd and Runkle (1993) reported that production technologies are one of the most important factors to measure the difference in profitability between banks. So, respondent B6 stated that *"there is a need for commercial banks to rely on modern technology for the development of banking services".* In order to cope with the ongoing and evolving needs of customers, and to work on the development of their banking services, they need to take the lead in introducing electronic services and means of delivery of these services to clients. All the respondents stated that technology was one of the most important factors which had an impact on Libyan commercial banks.

Commercial banks suffered from a distinct lack of application of modern banking technology, despite the passage of more than forty years since their establishment. Furthermore, they were not providing electronic banking services. Thus, respondents stated that there was no electronic link between the general administration of commercial banks and their branches to enable customers of commercial banks to complete all their banking transactions from any branch of the same commercial bank. On the other hand, in the private sector, especially the Bank of Commerce and Development had introduced some electronic and internet banking services, and there was a link between the administration of the bank and several of its branches. Gupta (1998) stated that improving profitability is influenced by decreasing transaction costs, such as banks using ATMs, which leads to a decrease in the number of employees in branches. Thus, the majority of respondents suggested that there was a need for commercial banks to increase their level of investment in the technology necessary for modern banking. All the respondents emphasised that the use of technology increases the speed of settlement and increases transparency. It also greatly assists the banks in the expansion and diversification of their services provided to customers, which in turn affects their portfolio profits and contributes to raising the efficiency of financial intermediation. Thus, respondent B4 stated that, "*Libyan commercial banks will benefit from technological spillovers brought about by their foreign competitors*". This contention is supported by several authors (Porter and Millar, 1985; Kozak, 2005; Holden and El-Bannany, 2006) who found the relationship between technology and profitability to be positive. On the other hand, Shu and Strassmann (2005) stated that banks' profits were not increased by technology. In this context, all the respondents were consistent that the lack of investment in technology had a negative impact on bank profitability.

So, the result of this research shows that the technology of Libyan commercial banks affected bank profitability negatively, due to the weakness of the technology which was used. Thus it is also a very important factor in explaining the profitability of Libyan commercial banks.

9.6 The impact of Libyan environmental factors on bank profits

In the fourth question, the managers were asked specifically about an unstable economic environment and its role in bank profits. An unstable economic environment has an impact on portfolio profits; this requires an increase in the adequacy of bank capital to face unexpected financial changes, (Koehn, 1980). All the respondents believed that the environment had an impact on portfolio profits. The success of banks was related largely to successful communication and interaction with the surrounding environment. Also, all the respondents agreed that the environment is the variable and constraint that could not be controlled by banks whether local or international, thus this could have an impact on the portfolios of commercial banks in terms of composition and profitability. The researcher divides environmental factors into six subcategories.

9.6.1 Lack of individual awareness of banking and its impact on bank profits

The first subcategory is awareness of banking; respondents stated that there were a large number of citizens who did not understand the importance of the role of commercial banks in economic activity. Thus, the phenomenon of a general preference for cash in everyday transactions and people keeping their money in vaults at home rather than deposited in the banks is still high. Hence, the majority of the respondents referred to total of three points, which had a relative influence: firstly, a lack of the payment obligations of banks.

The main reason given for a decrease in profitability was an increase in unpaid loans and high-risk loans facing the majority of Libyan commercial banks (Miller and Noulas, 1997). The second was the sale of mortgaged properties. The third was the demand for borrowing from banks.

Borrowers regarded the money they borrowed from commercial banks as public money and delayed repayments, and as a result real estate was not always easy to sell, especially outside the main cities. On the other hand, respondent B4 said that "*due to a lack of awareness of individuals about the role and importance of deposits and their effect on portfolio profits, as a result of changes in the relative values of a bank's assets and liabilities*". Hence, this led to limitations in the capacity and efficiency of the banking system to create deposits and expand credit in order to maximize their portfolios and thus to achieve higher profits.

It is clear that the majority of deposits in the popular sector are concentrated on demand deposits. Thus, they are a lower percentage compared to other deposits. This means that interest rates have an important role in the emergence and improvement of the private sector of the domestic economy. So, the majority of the respondents referred to a total of four points related to the weak percentage contribution of the private sector in the composition of savings deposits and deposits term being caused by the following reasons: firstly, the prices of loans on interest rates were always decreasing, although, the general level of prices was increasing; meaning that the real interest rate differed from the nominal interest rate. This was under the conditions being experienced by the domestic economy at the time of the study. The second was the higher volume of per capita gross domestic product, so that the majority of the income of individuals was spent on consumption. Third, the lack of interest by commercial banks in attracting the deposits of individuals was due to the cost of deposits being prohibitive in the light of low credit expansion.

Fourth, trust was shattered in the value of the dinar in the nineties, and individuals resorted to keeping foreign currency as an alternative to the Libyan dinar, which started to deteriorate in market value.

In addition, respondents A2 and B4 stated that "*individuals do not have sufficient information to keep pace with the ongoing development of banking in the country".* In addition, the majority of the respondents stated that commercial banks could be adversely affected by individuals, due to a lack of awareness of individuals about the role and importance of banks. This had caused a decline in the value of deposits; compared to the total basic monetary value. Hence, this led to limiting the capacity and efficiency of the banking system to create deposits and expand credit, due to the term deposits of Libyan commercial banks lacking stability. This gave commercial banks the opportunity to employ these deposits at different times, without the expectation of exposure to the risk of a lack of liquidity, which is usually caused by an immediate withdrawal of these deposits. Also this allowed commercial banks the opportunity to use their resources for financing in the short-term, enabling them to contribute to improving the performance of portfolio profits. Although, of the opportunity to use such deposits in long-term investments did not exist, they did free up a few other resources for moving towards long-term investments.

Depositors and consumption opportunity have an impact on a bank's portfolio during the operations of an important purchase, whereas legal restrictions can cause an increase in the fragility of a bank (Shell, 2003). The majority of respondents argued that the changes in the number of depositors and borrowers had had an impact on the profitability in Libyan commercial banks. This was due to the fact that the structure of liabilities affected the employment of assets, but the majority of the liabilities of commercial banks consist of current account deposits, and savings accounts, both short and long term.

The percentages of the last two deposits are always less than that of deposits in current accounts, due to the inability banks to accept such deposits in banks to avoid paying interest on them, and the fact that the banks already have a surplus of cash.

In this context, Casu, Girardone and Molyneux (2006) state that financial systems are prone to periods of instability and that the financial service industry is a politically sensitive one and relies to a large extent on public confidence. In addition, this is supported by Zulverdi, (2007) who emphasised that structural changes in banks and in the number of borrowers have affected the smoothness and effectiveness of monetary policy designed to encourage economic growth.

Respondent B5 stated that *"the benefit of the banks will better be achieved by continuing to foster trust between the citizen and banks, through the stabilization of substantive legislation, regulations and procedures, which governs the relationship between them".* Thus, the research found the relationship between awareness of individuals about the role and importance of deposits affected portfolio profits. Thus, it is very important factor in explaining the profitability of Libyan commercial banks.

9.6.2 Religion and its impact on bank profits

The second subcategory is religion; the majority of the respondents expressed that a segment of the community of members considering interest rates and commissions charged by commercial banks to be a form of usury. Therefore, many citizens avoided dealing with commercial banks on this basis.

9.6.3 The application of socialism and its impact on bank profits

The third subcategory is the application of socialism, adopted by the state in the management of the Libyan economy in the late seventies. It created a restriction on individual ownership and reduced the role of the private sector, and did not allow

people to have multiple sources of income. In relation to this subcategory, all the respondents felt that actions and policies adopted by state had contributed to this phenomenon, and that it had had a significant influence on bank profits.

As a result, the awareness of banking, application of socialism and religion were identified as several of the most important factors, which have had a direct negative impact on bank profits. Therefore, they can all be considered very important factors in explaining the profitability of Libyan commercial banks.

9.6.4 Banking regulations

The majority of respondents believed that the banking regulations in Libya were barriers to commercial banks expanding into investments in order to improve their portfolios and maximise their profits. In this context, the respondents referred to specific examples. e.g. restrictions on withdrawals from the accounts of individuals of various types, which occurred in late May 1980 and had a direct impact on commercial banks due to the lack of trust between citizens and the bank this measure engendered. The phenomenon of a preference for the use of cash among individuals, especially before Banking Law 1/1993, was due to the lack of trust between citizens and banks. It was not due to decisions issued by commercial banks, but it was due to the monetary decisions issued by the Secretariat of the General People's Committee or the Central Bank of Libya, such as the ceiling imposed on the withdrawal of money.

The majority of respondents also referred to a total of two factors which had lead to the high rate of currency in circulation compared to total of deposits in the commercial banks: first, the majority of people did not accept cheques in general in the settlement of transactions. Second, it was far easier to use local currency in the conclusion of business deals in the market. The research shows that over the last years a number of factors have contributed to influence profits in the banking sector.

9.6.5 Consolidation in the Libyan banking sector and its impact on bank profits

The fifth subcategory is consolidation in the Libyan banking sector. The time has come for consolidation in the Libyan banking sector, because it has become an important issue. It is worth mentioning here that the commercial banks in Libya are in desperate need of mergers due to their small size and to changes in the ownership pattern.

The commercial banks should be specialised in order to increase economic efficiency. This led to banking Law 1 of 2005 which provides legal cover for mergers and privatization of these institutions. Thus, the integration achieved between a numbers of banks is also part of a plan to reorganize the banking system.

The majority of respondents referred to several advantages of banking mergers, which may affect the profitability and composition of portfolios in several banks, which are: first, working on the basis of the broad scope by including small banks to each other and turn them into branches of the bank, which integrates it, and thus verify reduce costs by economizing in some expenses and streamlining operations and administrative reorganization and specialisation in the performance of various processes. Second, diversification of loans and investments in the bank compared to the common focus in the areas of limited prior to the merger of small banks, which diversifies risk and thus small banks. On the other hand, they referred to two main points of the disadvantages of integration, which are as follows: first, it reduces competition between banks, especially for areas that are unique to the merged bank alone, in that there is a risk of not responding to customer needs. The second is control of the merged bank in the policies of the small banks in directing funds from areas where they operate into other areas or the imposition of measures and new arrangements which do not agree with the methods of small banks.

The majority of the respondents confirmed that the high degree of concentration of commercial banks in terms of total assets was focused on a few banks. Hence, the majority of the respondents also emphasised that the trend towards the integration of banks may lead to the formation of strong banking entities able to compete and offering advanced banking services.

In addition, several of the respondents, such as A1, B2, B4, B5, B7 and B8 stated that the *"presence of foreign banks may impact on the banking sector, in the case of a weak regulatory and legislative organization"*.

Thus, the foreign banks may exercise monopoly pressure on the market, which may contribute to the fragility of the security and safety of the banking system, and thus threaten the stability of the national economy. In other hand, respondent B3 emphasised that *"the presence of foreign banks may lead to a reduction in fiscal costs and an improvement of bank management"*.

In addition, other respondents such as A1, A2, B2, B3, B4 and B5) added other advantages, such as *"great competition between banks"*. Therefore, the research suggests that the intervention of foreign banks had reduced bank profits due to several reasons mentioned above. In the context of these comments, several researchers have studied the impact of foreign ownership on bank profits, such as Tang et al., (2000); Bonin et al., (2005); and Claessens et al., (2001), thus the result of this research is consistent with them.

However, there is a need to provide an improved investment climate, appropriate and competitive, and also to provide equal opportunities for local and foreign investors, in addition to streamlining the approval, registration, compilation, tax incentives, (to include the tax law), of new companies. Consequently, the research also shows that due to political changes on one hand, and a resulting reduction of the efficiency of domestic banks, this has attracted foreign banks to enter the Libyan market since 1993, the

banking Law in Libya has relaxed restrictions on foreign companies and now allow foreign banks to undertake banking-related activities in their domestic markets.

9.6.6 The Libyan banking sector and the global financial crisis

Lastly, the sixth subcategory was the global financial crisis: in recent years, the global financial crisis has affected bank profits, so the research tried to find the relationship between it and the Libyan banking sector. Therefore, all the respondents emphasised that the Libyan banking sector had not suffered from the financial crisis. In this context, the Governor of the Central Bank of Libyan emphasised that *"despite the ongoing financial crisis, its effects on the national economy has been very limited, due to the limited degree of openness of the financial and banking sector banks to global markets, as well as the diversity of their portfolio assets, mostly in the form of deposits and bonds from foreign government, which enjoy high levels of liquidity and are spread over several banks and geographic regions"* (3/2009). This position was supported by the committee of the International Monetary Fund in their reports of 6/2009 and 9/2009, when they reported that "the impact of the global financial crisis on Libya has been thus far limited to the decline in oil revenue. This was due to the lack of exposure of domestic banks to the global financial system.

In addition, Libya's foreign assets consist mainly of foreign reserves, which are highly liquid, and the portfolio of the Libyan Investment Authority. The Libyan Investment Authority started operations in June 2007 and a large part of its assets consists of bank deposits". On the other hand, the current research noted that banks' profitability was affected indirectly by the financial crisis, as a result of increased oil prices preceding the financial crisis, which the research expected to have positive impacts on credit growth. This is supported by Al-Hassan et al. (2010).

Thus, the research found that the financial crisis had an impact on portfolio profits. These results may reflect the largely closed nature of the banking markets in Libya. Therefore, it is very important factor in explaining the profitability of Libyan commercial banks.

9.7 The central bank of Libya and its impact on bank profits

The researcher divided the Central Bank of Libya and its impact on bank profits into two subcategories, according to the qualitative data collected from the respondents, as follow.

9.7.1 State ownership and its impact on bank profits

In the first subcategory, the managers interviewed were asked about the ownership of banks and its impact on portfolio profits. Ownership is considered to be one of the determinants of portfolio profits, and this relationship has been investigated by many previous studies, which were introduced in the literature reviews. The study by Micco et al. (2006) found that private banks in developing countries had higher profitability and lower costs than their state-owned bank counterparts. Similarly, the majority of the respondents believed that the ownership of Libyan commercial banks had an impact on banks' portfolio behaviour, in terms of their portfolio profits.

They referred to several reasons which cause reductions in bank profits as a result of ownership, and all respondents agreed that state ownership had an impact on the profits of commercial banks. At the time of this study, there was no competition between commercial banks. Commercial banks received orders from higher authorities in the state, such as from the General People's Committee and the Central Bank of Libya. These orders were especially related to the orientation of credit to several public companies as part of the state's policies of economic development, but did not take into

account feasibility studies. In this context, respondent B1 stated that *"the state controls the ceiling of credit, interest rates on loans and interest rates on deposits. Thus, problems in commercial banks have increased, such as high debt stocks, doubtful collection and bad debts".*

The respondents referred to several points which they believed contributed to an imbalance in the ownership pattern of Libyan commercial banks. Thus, due to the situation that the most important part of financial services was provided in the Libyan economy by commercial banks, either wholly or to a large extent owned by the State. The majority of the respondents referred to a total of four important points, which impacted negatively on the performance banks, which were: firstly, banks were tied by several regulatory and administrative constraints imposed by law on state-owned enterprises. Secondly, there was inadequate performance by the administrative bureaucracy as a result of public ownership. Thirdly, state-owned enterprises suffered from low productivity and surplus labour costs. Fourthly, banks were forced to extend loans to public sector companies without reference to feasibility studies and also without adequate safeguards. This led to most of banks loans not being repaid and forced banks to engage in and contribute to uneconomic investments.

In addition, respondents such as B1, B3 and B6 emphasised that *"there is also a lack of financial incentives for employees".* In addition to this, the majority of respondents emphasised that the majority of branch managers outside the main cities made their financial decisions based on tribal loyalties rather than sound economic reasons. As a result, several companies and public entities who had been granted banking credit had merged with others to form new companies, or had folded. The result was that commercial banks were not following up the process, or the collection of debts. This research considers ownership type to be an important factor in on the profitability of Libyan commercial bank, and finds that the impact is negative on bank profits in Libyan

commercial banks. This research is consistent with several researchers (Short, 1979; La Porta et al., 2002a; Barth et al., 2004; Micco et al., 2004; and Sapienza, 2004) who all indicated that state-owned banks are less profitable than privately-owned banks.

9.7.2 Libyan monetary policy and its influence on bank profits

The second subcategory is Libyan monetary policy, which was included in order to understand its influence on bank profits. In examining the economic literature concerning the portfolios of commercial banks, there appears to be widespread evidence of stable and sound financial institutions.

Several studies have been conducted in this respect to investigate how portfolios are affected by monetary policy, and what impact they have on the real economy, due to the fact that all sectors in the economy deal with commercial banks directly. The majority of the respondents believed that the Central Bank had a direct impact on banks' portfolio behaviour. In this context, respondent B2 said that *"the Central bank of Libya and its management of monetary policy are barriers to commercial banks expanding into investments in order to improve their portfolios and to maximise their profits"*. The role of the commercial bank is as a depositary of financial intermediaries (Roley, 1980). Thus, any change in monetary policy has an immediate impact on commercial bank portfolios on the demand of credit.

The majority of the respondents referred to total of several points, which they saw as leading to Libyan commercial banks developing their portfolios in the light of developments of monetary policy, in terms of increasing profitability and reducing investment risks. At the beginning of each period, the return from each asset in commercial banks portfolio may be determined and its ratio to overall profits may be calculated (Blair, 1978).

Thus, the points made by respondents may be summarised as follow: first, the Central Bank of Libya should have greater independence and more of a role in the management of monetary policy, which relies more on the market and in the liberalization of interest rates, and this means the allocation of public commercial banks to contribute to a greater role in the economic development process, supporting new banks.

Second, the Central Bank of Libya should review the efficiency and effectiveness of monetary policy, including an awareness of new developments and changes taking place locally and internationally, in accordance with the requirements of each phase of monetary policy. Third, the Central Bank of Libya should help to accelerate the activation of the financial market as a source of influence on money supply and also a source of financing for economic development. The Central Bank should help commercial banks to diversify their sources of income by mandating Banking Law, especially with regard to foreign investment; this may also bring advantages in terms of reducing risks and new recourses to increase the volume of their portfolios.

Fourth, monetary policy had not taken into account the effect of interest rates on credit and deposits developments, which related to the phenomenon of inflation and monetary contraction, which in turn reflected negatively on real interest, but the amendments made by the Central Bank of Libya in the price of interest rates on credit and deposits were moving in the downward trend. This was reflected in the volume of savings deposits and term deposits in the private sector and among individuals. Respondent B2 stated that *"interest rates did not play an important role in influencing banking credit",* in addition to which respondent B7 emphasised that "*the discount rate also did not play an important role in influencing banking credit in the light of the developments witnessed in the surplus liquidity of commercial banks*".

Commercial banks should orient banking credit towards the productive sectors and away from the consumer-oriented side, and reconsider the conditions for granting banking credit, in order to avoid credit risks and ensure good returns on loans, and to eliminate one of the main problems. In this context, respondent A1 stated that *"the survival of the legal reserve and liquidity ratio fixed for a long period of time reflects a lack of compatibility with the developments and changes that have occurred in the domestic arena".* The research noted that decline in the fiscal surpluses in some periods, whilst high in other periods, did not change these percentages. In addition the entries of new banks into the banking arena, with good financial ability, are subject to the same reserve ratio and liquidity as the banks which have high financial capacity. This is supported by the data analysis in chapter 8, which indicated that the coefficients of the cash reserve ratio and money supply are insignificant in both high and low profit banks, implying that they do not explain the changes in dependent variables.

Also in this connection, respondent B1 reported that, *"there should be coordination between different economic policies to avoid conflict. For example, the trade and fiscal policies reflected negatively on the goal of monetary policy, which aimed to achieve stability in the value of the local currency both internally and externally, especially during the period 1986-1998. Thus, this affected the portfolios of commercial banks".*

The result of the research suggests that the Central Bank has negative and significant impact on banks' portfolio behaviour. Thus, the Central bank of Libya and its management of monetary policy are barriers to the portfolio profits of Libyan commercial banks.

9.8 A summary of the results of the qualitative data analysis

In Table 9.1, the researcher has tried to summarise the results of the analysis of qualitative data, with the key categories and sub-categories which were extracted from the qualitative analysis.

Table 9.1 A summary of the results of the qualitative data analysis

N	Categories	Sub-categories	The results of the data analysis	Summary of justification of the results of the analysis
1	Banking risks	1. Credit risk	Negative	The result concluded that poor assets quality (loans) is the main cause to reduce bank profits As a result; the banks contribute to several areas of high risk, on the one hand and do not take into account the commitment norms, banking and the requirements of caution.
		2. Liquidity risk	Negative	Libyan commercial banks are facing problem with surplus liquidity. Due to (1) the lack of employment in the domestic market for small businesses and limited fields of short-term investments, (2) commercial banks resort to the simplest ways to ensure their gains, (3) commercial banks do not have the ability to activate that cash and use it optimally, (4) also commercial banks fear to expand in granting banking credit from demand deposits. The majority of Libyan commercial banks have suffered from a high volume of liquidity compared to legal liquidity specified by the Central Bank of Libya.
		3. Investment risks	Negative	This was found to be negative due to (1) the instability of the economic structure; (2) a controlled public sector; (3) restriction investment policy of commercial banks and directing the areas in which they can invest (4) legislation fast track hit economic life in Libya, and it also affected many orders to the banks and a variety of conflicting sources. All of this lead to problems of investment in Libyan commercial banks, and this affected commercial banks in terms of their profits.
2	Restructuring in the banking sector	1. Restructuring in the banking sector and bank profits	Positive	This was found to be positive due to (1) restructuring of the banking system; (2) strengthening banking supervision; (3) updating the local payment system; (4) amendments in both the legal and regulatory frameworks, (5) the Central Bank of Libya to develop indirect instruments of monetary policy, beginning with the issuance of other instruments based on certificates of deposit and revitalizing the market and currency circulation between banks, as a first step towards the establishment of open market operations.
		2 .Economic reform programmes and bank profits	Positive	This was found to be positive due to that (1) the important steps to removing obstacles that impede foreign investments, through the issuance of certain laws to encourage foreign investment, and the establishment of a special body to encourage foreign investments during the year 2000; (2) the improvement of economic reform programmes were based on the restructuring of the public sector's role in the national economy, and designed to strengthen the role of the private sector.

3	Banking services and technology	1. Banking services and their impact on bank profits	Negative	A number of factors contributed to the phenomenal decline of services in Libyan commercial banks, (1) clients waste a lot of time withdrawing funds from commercial banks, especially at times of religious events and holidays, and (2) the emergence of the role of personal relationships and nepotism as an important factor the treatment of in clients by commercial banks. Libyan commercial banks have not worked to keep pace with global developments taking place in the field of banking services.
		2. Banking technology and its impact on bank profits	Negative	This was found to be negative due to the weakness of the technology used. There was a need for commercial banks to increase the level of investment in the technology necessary for modern banking. The use of technology increases the speed of settlement and increases transparency. It also greatly assists the banks in the expansion and diversification of the services provided to customers, which in turn affects their portfolio profits and contributes to raising the efficiency of financial intermediation.
4	Libyan banking environmental factors	1. Lack of awareness of banking by individuals and its impact on bank profits	Negative	Due to several points: First, lack of payment obligations of banks. Thus, the main reason for a decrease in profitability is an increase in unpaid loans and high-risk loans are facing the majority of Libyan commercial banks. The second is the sale of the mortgaged properties. The Third is the demand for borrowing from banks. Borrowers see the money they borrow as public money and delay payments, and as a result real estate is not always easy to sell, especially if it is outside the main cities. Hence, this led to limiting the capacity and efficiency of the banking system to create deposits and expand credit in order to maximize their portfolios and to achieve higher profits. Also, there are many citizens who do not understand the importance of the role of commercial banks in economic activity. Thus, the phenomenon of a preference for cash and people keeping their money in vaults at home rather than deposited in the banks is still high.
		2. Religion and its impact on bank profits	Negative	A segment of members of society consider the interest rates and commissions charged by commercial banks as a form of usury.
		3. The application of socialism and its impact on bank profits	Negative	In the late seventies restriction was created on individual ownership and reduced the role of the private sector, and did not allow people to have multiple sources of income.
		4.Banking regulations	Negative	This was found to be negative due the lack of trust between citizens and the bank. It was not due to decisions issued by commercial banks, but it was due to the monetary decisions issued by the Secretariat of the General People's Committee or the Central Bank of Libya.
		5. Consolidation in the Libyan banking sector and its impact on bank profits	Positive	This was found to be negative due to the merging of small branches which consequently reduced costs by economizing in some expenses and streamlining operations and administrative reorganization and specialisation in the performance of various processes. Second, diversification of loans and investments, third, reduced competition between banks, especially in areas that were unique to the merged bank. The integration of banks lead to the formation of strong banking entities able to compete and offering advanced banking services.

		6. Libyan banking sector and the global financial crisis	Positive	The result of the research noted that banks' profitability was affected indirectly by the financial crisis, as a result of increased oil prices preceding the financial crisis, so the research expects it have positive impacts on credit growth.
5	Libyan Central Bank and its impact on bank profits	1. State ownership and its impact on bank profits	Negative	This was found to be negative due to several points; first, banks were tied by several regulatory and administrative constraints imposed by the Laws on state-owned enterprises. The second was inadequate performance by the administrative bureaucracy as a result of public ownership; third, low productivity and a significant proportion of surplus labour; fourth, banks were forced to extend loans to public sector companies without reference to feasibility studies and also without adequate safeguards; finally the lack of financial incentives for employees. In addition, the majority of the respondents emphasised that the majority of managers of branches outside of the main cities made their decisions based on tribal loyalties rather than sound economic reasons.
		2. Libyan monetary policy and its influence on bank profits	Negative	Due to, first, interest rates and the discount rate did not play an important role in influencing the banking credit; second, the survival of the legal reserve and liquidity ratio fixed for a long period of time reflected the lack of compatibility with the developments and changes that occurred in the domestic arena. The Central Bank did not help commercial banks to diversify their sources of income by mandating Banking Law, especially with regard to foreign investment; this may also have brought advantages in terms of reducing risks and new resources to increase the volume of their portfolios.

Chapter ten

The Conclusions and recommendations of the research

10. The Conclusions and recommendations of the research

10.1 Conclusion of the research

This research employs the Statistical Cost Accounting Method on a sample of 16 commercial banks operating in Libya over the period 1997–2008, in order to examine differences in profitability between banks, due to differences in the influence of the independents variables which were mentioned in chapter 5, such as assets and liability management, bank-specific, industry-related and macroeconomic variables. Furthermore, the research has investigated the effect of several factors through the use of interviews. The research has achieved its main objectives and answered the research questions posed. In addition, it has provided results of the determinants of portfolio profits in Libyan banking during the period 1997– 2008. Applying multiple regression analysis, the research divided the analysis into three groups: (1) the first group incorporates all the Libyan commercial banks (2) the second group incorporates public and private banks separately, and (3) the third group incorporates banks with high and low profitability separately. This research differentiates empirical estimates of portfolio profits earned by different groups of Libyan commercial banks as they relate to various independent variables.

The results of Assets and Liabilities Management with regard to bank profits: The first three hypotheses of the study were related to individual bank variations in assets and liabilities management in Libyan commercial banks, in order to explain variations in profits. The empirical results of these hypotheses indicated that the relationship between profitability and assets and liabilities management (ALM) with the first and second group (All Libyan commercial banks and public and private banks respectively) significantly affected bank profitability, thus profitability can be explained through analyzing ALM. It is obvious from the results that private banks are better than public banks in terms of profiting from loans.

A higher return on these assets is sufficient to create profitability differences between the two types of banks. However public banks were better than private banks in terms of demand deposits management, but private banks were better than public in terms of term deposits management. The results do not provide support for the idea that ALM in private banks is better than public banks. In the third group, high and low profit banks; it is obvious from the results that high profit banks are better than low profit banks in terms of loans and term deposits management, due to their greater experience in lowering marginal costs, which was sufficient to create profitability differences. However, low profit banks were better than high profit banks in terms of demand deposits management, due to low profit banks' expertise in lowering marginal costs.

The results do not indicate that ALM in high profit banks is better than in low profit banks. The reason for the large volume of demand deposits in the industry as a whole is the reluctance of customers to use savings accounts. This reluctance of customers is largely due to the interest earned on savings deposits, which is called usury in Islam and is forbidden (by the Koran). In terms of the management of assets, the results showed that public banks were employing significantly fewer asset management strategies than the private banks. Nevertheless, the research did not provide evidence on which banks were using better liability management strategies.

Also, in terms of the management of assets, the results showed that high profit banks were employing significantly better asset management strategies than low profit banks. However, the research did not provide evidence about banks using better liability management strategies. Generally, the estimated rates of return on assets (liabilities) are found to be positive (negative) and to vary across assets (liabilities).

The results of analysis of bank specific variables with bank profits: The sound financial condition of Libyan commercial banks means that banks are able to deal with problems which arise from unexpected losses.

The results reported that there was a positive relationship between capital and bank profits, confirming hypothesis 4 in chapter 5. Commercial banks enjoyed a good level of capital and profitability. The total capital adequacy reached 16% at the end of 2008, and banks were therefore able to pursue business opportunities to make higher profits. The banking sector in Libya is still predominantly owned by the public sector, which carries a rate of 90% of the volume of banking business in Libya. The research considered ownership type to have been an important factor on the profitability of Libyan commercial banks, due to several regulatory and administrative constraints imposed by the law on state-owned enterprises, and inadequate performance by the administrative bureaucracy because of public ownership. Consequently, it has a negative impact on the profits of Libyan commercial banks. Regarding the issue of the market share of commercial banks, it was noted that the high proportion of the market share of commercial banks in terms of total assets was focused on a only a few banks. This substantially affected competition and the performance of the banking sector.

The data collected in this research show that the share of the three largest banks amounted to 80% of the total assets of the banking sector. Consequently, market share had a disparate effect on bank profits, as mentioned in Table 8.1. The small size of most Libyan commercial banks was one of the most prominent aspects of their structural weakness. This has a direct effect on the size of their investment portfolios. The researcher noted that the effect of bank size on profitability was important, and this phenomenon may be explained in that small-sized banks usually try to grow faster, even at the expense of their profitability, because they place greater emphasis on increasing their market share. On the other hand, large banks are able to cope with inefficiencies; especially, as the largest banks are state owned. This may be due to bureaucratic reasons. It was noted that the size of the bank positively and significantly affects bank profits; the estimation question shows that the effect of bank size on profits is usually

positive and statistically significant. However, the estimated effect of the size of Libyan commercial banks does not provide evidence of economies of scale in banking. The results also concluded that a part of credit risk was associated with volume of credit, activity diversification, and public ownership. There was clear evidence that bank profits could be increased alongside an increase in credit risk. This would increase bank profits, thus boosting credit expansion and financial intermediation. Therefore, poor asset quality (loans) was the main cause of reduced bank profits, but not liquidity risk. Hence, as a prerequisite, good quality management has to be introduced, because it has a direct impact on bank profits and avoids problems associated with granting loans. The variations in profitability between banks were mostly due to variations in credit risk; this refers to banks contributing to several areas of high risk on the one hand, and not taking into account banking commitment norms, and the requirements of caution.

In addition, there were limited checks regarding client credit status before granting loans, and the commercial banks were often therefore reluctant to consider the demands of clients with regard to access to additional funding for the continuation of a project, to avoid any defaulting. So, credit risk was found to have a negative relationship with bank profits. This result can be explained in that credit risk influenced bank profits excessively when the banks tried to maximize profits through new investment.

The results of the banking industry with regard to bank profits: The third issue referred to the influence of the individual variations in bank profits explained by banking industry variations in Libyan commercial banks. The elicited relationship between bank profits and industry variables, in the first and second groups (all Libyan commercial banks and public and private banks respectively) indicated that the level of development of the banking sector explains profitability. Due to the improvement in the regulatory framework of the banking system brought about by the new banking Law 1/ 1993, it was explicitly stated that there was a need to maintain secrecy and not disclose

information. This was the first step in order to improve the trust of customers and potential customer in the banking sector. This allowed banks to create competition, by which they could attract customers and lower their financial services costs, contributing to an improvement in economic efficiency. This increased market shares and the profitability of banks, and also led to an increase in the number of customers and consequently the amount of deposits, both demand and term deposits. Consequently, the research concluded that public banks earned significantly higher returns from the bank industry at 1% level, compared to the private banks.

The results of Libyan macroeconomic factors with regard to bank profits: The differences in Libyan macroeconomic policies had pronounced effects on bank profitability. These results may reflect the relatively closed nature of the banking market in Libya. As a result, it is an important idiosyncratic factor affecting Libyan banks' profits. The research gives some support to the influence of macroeconomic policy in strengthening the financial stability of banks. The results indicated that the profitability of commercial banks in the first group (all Libyan commercial banks) was affected by macroeconomic variables. In addition, the profitability differences between banks could also be explained by macroeconomic variables in the second and the third groups (public and private banks and high and low profit banks respectively). The result found a positive relationship between inflation and the profitability of banks. This may be explained by the inability of the managers of Libyan banks to predict inflation, which, in turn, suggests that interest rates have not been managed appropriately to meet the aim of achieving improved profitability.

Bank customers may also have failed to suggest that it was not possible to make larger than normal profit. The results indicate that per capita income had a negative relationship with bank profits.

One possible explanation for this points to the tight monetary policy in place during the period examined, which constrained bank lending. In addition, high commodity prices clearly affected the living conditions of citizens, and in this context, a stronger relationship between economic growth and bank profits should be taken into account as well as uncertainty associated with macroeconomic instability. The research notes that there was a positive relationship between money supply and bank profits. The price of crude oil had a significant impact on oil exports and oil revenues due to increasing oil prices on the world market causing an increase in net foreign assets at both the Central Bank of Libya and Libyan Commercial Banks. In this regard, the profitability of both high and low profit banks was not affected by monetary policy (reserve ratio and liquidity ratio). The results indicate that continuance of the legal reserve and liquidity ratio, fixed for a long period of time, reflects a lack of compatibility with the developments and changes that occurred in the domestic arena. This result is also supported by the respondents with whom interviews were conducted.

The experience of the researcher in the banking field allowed him to relate to respondents in the banking environment, which made it easier to collect in-depth information. The researcher selected semi-structured interviews as an appropriate method of data collection in this research, in order to obtain additional information about the topic. In terms of the balance of utility in the research project, the qualitative findings have the same importance as the quantitative ones. The results noted that a lack of awareness of the banking system by individuals, the influence of religion, the state's application of socialism, banking regulations, banking services, banking technology, bank ownership, Libyan monetary policy, liquidity risk, investment risks and credit risk were several of the most important factors, which had a direct negative impact on bank profits. They are very important factors in explaining the profitability of Libyan commercial banks.

Libyan banking environmental factors such as lack of awareness of banking by individuals had a negative impact on bank profits, due to several points: firstly, the failure of banks to impose payment obligations on borrowers. Thus, the main reason for a decrease in profitability was an increase in value of unpaid loans, and the number of high-risk loans held by the majority of Libyan commercial banks. The second was the sale of mortgaged properties. The third was the demand for borrowing from the banks. Borrowers regard the money they borrow as public money and delay their repayments, and as a result real estate is not always easy to sell. Also, there was a large number of citizens who did not understand the importance of the role of commercial banks in economic activity. Thus, the phenomenon of a preference for cash in everyday transactions and the tendency of people to keep their money in vaults at home rather than deposited in the banks was still high. Consequently, it was a very important factor in explaining the profitability of Libyan commercial banks. Religion was also the most important factor which had a direct negative impact on bank profits. So, it was a very important factor in explaining the profitability of Libyan commercial banks, due to a segment of members of society considering the interest rates and commissions charged by commercial banks to be a form of usury. In addition to religion, the application of socialist policies adopted by the state had a significantly negative influence on bank profits, which created a restriction on individual ownership and reduced the role of the private sector. In addition, trust in the value of the dinar was undermined in the 1990s, and individuals resorted to keeping foreign currency as an alternative to the Libyan dinar, which started to deteriorate in market value.

So, banking regulations had a significantly negative effect on bank profits, due to a lack of trust between citizens and the banks. The banking regulations which caused this mistrust were not due to decisions made by commercial banks, but were due to the monetary decisions issued by the Secretariat of the General People's Committee or the

Central Bank of Libya. This situation led to the high proportion of currency in circulation compared to the total of deposits in the commercial banks. As a consequence of this situation, the majority of people did not accept cheques for the settlement of transactions, and Libyans found it far easier to use local currency conducting business deals. Consequently, the results conclude that banking regulations in Libya are barriers to commercial banks expanding their range of investments in order to improve their portfolios to maximise their profits.

Libyan commercial banks were found not to have worked to keep pace with global developments taking place in the field of banking services**.** In this respect, banking services had a negative impact on bank profits. A number of factors contributed to the phenomenal decline in the services offered by Libyan commercial banks. Among the problems identified by the study are: firstly, clients wasted a lot of time withdrawing funds from commercial banks, and secondly, the emergence of the role of personal relationships and nepotism was seen to be an important factor in the treatment of clients by commercial banks.

Consequently, Libyan commercial banks suffered from a low level of banking services and technology. Hence, banking services and technology were very important factors in explaining the profitability of banks. Banking technology was found to have a negative impact on bank profits, due to the weakness of the technology used. The research shows that there is a need for commercial banks to increase their level of investment in the technology necessary for modern banking. The use of technology increases the speed of settlement and increases transparency. It also greatly assists the banks in the expansion and diversification of the services provided to customers, which in turn affects their portfolio profits and contributes to raising the efficiency of financial intermediation. This might decrease profitability in the short term, as the investment requires capital, but medium to long-term this investment in banking services will turn into increased

market share growth and profitability. Consequently, it is a very important factor in explaining the profitability of Libyan commercial banks.

The research found that government ownership had a negative correlation with the efficiency of the banks. It noted that state-owned banks were less profitable than privately owned banks. This was found to be due to several points; firstly, banks were tied by several regulatory and administrative constraints imposed by the law on state-owned enterprises. Secondly, there is evidence of inadequate performance by the administrative bureaucracy as a result of public ownership; thirdly, state-owned banks have low productivity; fourthly, banks were forced to extend loans to public sector companies without reference to feasibility studies and also without adequate safeguards; fifthly, the lack of financial incentives in Libyan commercial banks had a negative impact on the ability of banks to attract capable and qualified staff; and finally, the majority of managers of branches out of the main cities made their decisions based on tribal loyalties rather than sound economic reasons. Libyan monetary policy had a negative influence on bank profits, due to: firstly, interest rates and the discount rate did not play an important role in influencing banking credit; secondly, the continuance of the legal reserve and liquidity ratio fixed for a long period of time reflected the lack of compatibility with the developments and changes that occurred in the domestic arena. The Central Bank did not help commercial banks to diversify their sources of income by mandating the banking Law. It is noted that the Central Bank had a negative and significant impact on banks' portfolio behaviour.

The Central Bank of Libya should review the efficiency and effectiveness of its monetary policy, including keeping abreast of various developments and changes taking place locally and internationally, in accordance with the requirements of each phase of the policy. The Central bank of Libya and its management of monetary policy are as barriers.

Liquidity risks arise from the possible inability of a bank to accommodate decreases in liabilities or to fund increases on the asset side of the balance sheet. This is considered an important determinant of bank profitability. According to the findings of this study, Libyan commercial banks were not exposed to liquidity risk. However the majority of Libyan commercial banks suffered from a high volume of liquidity compared to the legal liquidity limit specified by the Central Bank of Libya. Liquidity risk had a negative relationship with bank profits. Libyan commercial banks faced problems with surplus liquidity, due to: firstly, the lack of employment in the domestic market for small businesses and limited fields of short-term investments; secondly, commercial banks resorted to the simplest ways to ensure their gains; thirdly, commercial banks did not have the ability to activate that cash and use it optimally; and fourthly, commercial banks feared to expand their banking credit from demand deposits. In this context, investment risks had a negative relationship with bank profits. This relationship can be attributed to the instability of the country's economic structure; the level of centralised control in the public sector; and the restrictive investment policy applied to commercial banks, directing the areas in which they could invest.

In addition, the study concludes that poor asset quality (loans) was the main cause for the reduction of bank profits. Among other important factors are:, the restructuring in the banking sector, the liberalization of the economy, consolidation in the Libyan banking sector, and the financial crisis, which have all had a positive direct impact on bank profits.

They are very important factors in explaining the profitability of Libyan commercial banks. The operation of the restructuring in the banking sector affected bank profitability positively. The restructuring was meant to instil competition into the banking sector, mobilize savings and lead to a more efficient allocation of resources.

The results reflect that the operation of the restructuring in the banking sector were expected to affect bank profitability positively, due to: firstly, restructuring of the banking system; secondly, strengthening banking supervision; thirdly, updating the local payment system; fourthly, amendments in both the legal and regulatory frameworks; fifthly, the Central Bank of Libya developing indirect instruments of monetary policy, beginning with the issuance of other instruments based on certificates of deposit and revitalizing the market in currency circulation between banks, as a first step towards the establishment of open market operations. In addition, due to the liberalization of the economy, it is concluded that an improvement in the state's economic reform programmes affected bank profitability positively. They were a very important factor in explaining the profitability of Libyan commercial banks due to: firstly, they achieved the important goal of removing obstacles that impeded foreign investments, through the issuance of certain laws to encourage foreign investment, and the establishment of a special body to encourage foreign investments during the year 2000; secondly, they began the improvement of economic reform programmes based on the restructuring of the public sector's role in the national economy, and designed to strengthen the role of the private sector. The study found that consolidation in the Libyan banking sector had a positive relationship with bank profits, due to:, firstly, its effect in broadening the scope of Libyan banking by and the integrating of smaller banks, turning them into branches of the larger banks, and thus achieving the reduction costs by economizing some expenses and streamlining operations and administrative reorganization and specialisation in the performance of various processes.

Secondly, through the diversification of loans and investments; and thirdly, by reducing competition between banks, especially for areas that are unique to the merged bank.

The integration of banks led to the formation of strong banking entities able to compete and offering advanced banking services. On the other hand, the disadvantages of

integration were as follows: first, reducing competition between banks; second, control of the merged bank in the policies of the smaller banks in directing funds from areas where they operated to other areas or the imposition of measures and new arrangements contradicting the policies and methods of small banks. Also, the results show that political changes and a reduction of the banking efficiency of domestic banks were likely to attract foreign banks to enter the Libyan market.

Since 1993, banking law in Libya has relaxed restrictions on foreign banking and now allows foreign banks to undertake banking-related activities in Libya's domestic banking market. It is worth mentioning that the commercial banks in Libya were found to be in desperate need of mergers due to their small size and to changes in the ownership pattern. Consolidation in the Libyan banking sector affects bank profits. Regarding the financial crisis, the research found that the global financial crisis did not impact directly on portfolio profits. These results may reflect the largely closed nature of banking markets in Libya. On the other hand, the result of the research noted that banks' profitability was affected indirectly by the financial crisis, as a result of increased oil prices preceding the financial crisis, so the research expected this to have positive impacts on credit growth.

10.2 Recommendations of the research

Based on the findings of this research, the researcher provides the following recommendations designed to contribute to the profitable future of Libyan commercial banks.

1- Strengthening confidence in the banking system: They benefit from the difference in time between the movement of deposits and withdrawals, and they exploit the trust of the depositors. In Libyan commercial banks before 1993, the damage caused by withdrawal restrictions on the trust of depositors led to an increase in withdrawals, and an increase in inflationary pressures associated with it. In addition, failure to maintain the confidentiality of accounts and placing personal information at the disposal of control government had a negative impact on trust in the sector. The new banking law 1/1993 expressly provides that there is a need to maintain secrecy and not to disclose information. This was the first step in reinstating trust in the banking sector, but further steps are needed, which include taking the necessary steps to protect bank clients in cheque transactions.

2- Commercial banks should focus on the development of their services on the internet, and must keep pace with the importance of educating customers in how to deal with the networks of the Internet.

3- Commercial banks should give a greater role to marketing departments in order to conduct marketing research into customers, regarding their demographic, social and consumption patterns. The purpose is this is to develop banking services. These studies will enable the management of banks to design and implement their policies in order to achieve the needs and requirement of customers.

4- Commercial banks should be aiming to educate people about the deployment of banking culture, particularly with regard to electronic banking services.

The purpose is to create confidence in clients in these services and to help them with use such facilities, and to increase their confidence in the banking sector. This could be achieved through advertising, publicity, and introducing these services in the news, whether in newspapers, magazines, radio or television.

5- Commercial banks should work to build new policies by providing banking services to clients close to their location, in order to win customers and keep them, and satisfy their desires as a means to achieving the banks' aims. In addition, this philosophy should be reflected in the behaviour and actions of commercial bank staff when dealing with customers.

6- Commercial banks should invest their surplus liquidity and reserves through new areas of investment, especially following the formation of a securities market in Libya in the latter half of 2006. Thus, commercial banks should invest this surplus in commercial, industrial, and service companies.

7- Commercial banks should open branches providing banking services according to Islamic Law in order to benefit from the funds of clients who are reluctant to deal with the branches of conventional commercial banks. As a result, this would lead to an improvement in the level of banking services and diversification.

8- Commercial banks should modernise to provide all the services available in advanced economies to Libyan customers. This means transforming from traditional banks to totally modern banks, by participating in the evaluation of projects which are being offered under the privatisation programme.

9- There is a need for commercial banks to work with modern and sophisticated policies to develop personnel able to deal with the developments of modern banking in order to face the competition they will face following the entrance of foreign banks to the Libyan market. This could be achieved through accessing courses abroad at training

centres of global banking companies, and employing foreign experts to train local professionals.

10- There is a need to increase the salaries of employees of commercial banks, in addition to granting incentives and rewarding excellence.

This would create a spirit of competition among employees to achieve maximum excellence and innovation in the provision of banking services.

11- Attracting savings: The fundamental role assigned to the banking system is to collect savings from all sectors (individuals, companies, institutions and the public sector) and encourage them to engage in different investments. So, it is clear that where Libyan commercial banks are concerned, the issue of increasing savings is an important process to provide funds for the operations of bank credit, which commercial banks need to increase the volume of their portfolios, and thus improve their profits. This requires the removal of all obstacles to the accumulation of savings, but should be stimulated through the payment of interest, and by providing adequate savings and facilities dealing with them.

12- Creating an appropriate climate for investment: The development of the banking business requires the provision of an appropriate climate for investment operations. So, a set of legal and institutional legislation needs to be created to activate the movement of investment. The creation of an enabling investment climate requires the issuance of legislation and regulations conducive to investment, and reducing restrictions on trade and investment with a flexible policy in the field of foreign exchange. Initial requirements of an investment climate include clarity of the overall philosophy of economic policy, its objectives, size and role, and how it will be applied to various sectors in the economic process. This will be lead to investment opportunities for banks to achieve their aims, such as increasing their profits.

13- The Libyan Government should continue to expand the base of ownership in the banking sector. This can be achieved by the Central Bank of Libya selling its stakes in the commercial banks, or by the integration of some banks with each other, the application of international accounting and auditing standards, and improving loan portfolios in order to move these banks towards independence in the resolution of credit, to reduce the credit risk, consequently, by changing the pattern of ownership of Libyan commercial banks.

The pattern of public ownership of commercial banks has implications on its relationships, whether with the Central Bank of Libya or each other. The role of the Central Bank of Libya was characterized in the past as a sponsor more than as a supervisory authority to the banking system. Commercial banks are public institutions rooted in ownership to a single institution (the state). This affects the competitive process between them, and is reflected in the low level of services. Consequently, commercial banks have not developed credit policies, and also they have not made great efforts to develop new investment opportunities, or develop existing ones. The privatisation of commercial banks and conversion into joint stock companies came into about after Law banking 1/ 1993, which also allowed foreign banks to open branches in Libya. The researcher believes that, in line with economic trends, it is important to follow up this process and for the Central Bank of Libya to give up all ownership of commercial banks, following the situation in other parts of the world where the central bank has no ownership of commercial banks.

14- The accelerating development of the Libyan securities market: monetary policy can only be applied in an integrated manner, when there are necessary and appropriate intermediaries in place. The existence of an active securities market is a condition for achieving targeted restructuring of the national economy. As a result, new horizons may

open for commercial and private banks to play a role by working as intermediaries between savers and borrowers.

15- Economic stability: The elements of stability, clarity and consistency of economic policies in general are considered important issues necessary to supporting the efficient functioning of Libyan commercial banks. Consequently, the existence of the banking system with its various institutions, securities and bonds will only be complete, if the element of stability in both the supply and demand for credit is established, otherwise operations would be limited to specific funding and specific periods.

16- Creating competition: It could be expected that there will be an increase in the element of competition between commercial banks, especially after starting the transfer of ownership from public to private and the establishment of private banks, together with the entrance of new branches of foreign banks as sole entities or as joint ventures with domestic banks. There is no competitive pricing between commercial banks, as they do not pay interest on demand deposits (current accounts), and the interest rates on term deposits and savings deposits are virtually identical in all commercial banks. Therefore, competition among them can at present only be within the services provided by these banks. That means that the commercial banks will compete in order to obtain the largest share in the banking market, and this can be achieved through the improvement of banking services to gain customers. Therefore, banks should have competitive the policies for the consolidation of service banking fees.

17- There is for an urgent need to improve and develop the statistical system in Libya, which suffers from the shortcomings of many developing counties, and which affects the ability of all stakeholders to assess economic and financial conditions and to develop appropriate policies. There is a requirement to develop an institutional and legislative framework and build an effective statistical system. This can be achieved

through the establishment of an independent statistics body to compile, prepare, and disseminate official statistics, in full coordination with data production.

10.3 Contribution of knowledge

Despite extensive investigation, no current studies have been located that consider the very specific banking environment of Libya, which at the time of this study was still in transition. This research is the first study of its kind to examine holistically which factors have an influence on portfolio profits in Libyan commercial banks and private banks. This research differs from previous studies in several aspects:

Firstly, in endeavouring closing the gap in the literature, this research has put forward a revised conceptual framework, which elicits all the relevant variables specifically differentiate as to the Libyan banking environment in transition. These variables interrelate as conceptual frameworks of this research for all banks. Based on the framework, several variables are used in this study which included: first, liquidity ratio and reserve ratio, which are used by Central Bank of Libya to manage monetary policy to control money supply and domestic credit which have an influence on the volume of bank portfolio, thus on portfolio profits; second, money supply due to the fact that money supply in Libya is affected by net foreign assets, either held by the Central Bank of Libya or Libyan commercial banks. It should be noted that including the variable on money supply was the new initiative of the researcher.

Secondly, this study has applied the framework within a new context, i.e. Libyan economy which has a salient feature in terms of its economic development path.

Thirdly, another contribution in this research was made by conducting both quantitative and qualitative researches; an approach was rarely undertaken in the existing economics literature. By doing so, the researcher is able to provide an explanation of the difference of profits between different banks in a holistic way.

Finally, the conclusions drawn from this research would also be of particular interest to the Libyan banking systems and economy, which were experiencing fundamental changes during the period when the research was conducted. The researcher is strongly convinced that the environment in which Libyan commercial banks operate has an impact on bank profits. The success of banks is related largely to successful communication and interaction with the surrounding environment. Thus, external environment is a strong variable that cannot be controlled by banks, whether at local or international level, but it has to be dealt with strategically.

Libya is now opening the door for foreign investment to invest in different sectors. Therefore, it requires knowledge of the underlying factors that affect banks' profitability. The results of this research may serve as a guide for foreign or local investors on the one hand, and the managers of the banks, and for numerous stakeholders such as the Central Banks, Bankers Associations, Governments, and other Financial Authorities on the other.

10.4 Limitations of the Research

This research examines the effects of assets and liability management, bank-specific, industry-related and macroeconomic variables on the profitability of the Libyan commercial banks over the period 1997-2008, by using both quantitative and qualitative methods of research. Any research can face several problems. So, the limitations of this research can be summarised as follows: (1) Confidentiality: the researcher confirmed to respondents the confidentiality policy of the University of Gloucestershire, and that the interviews would be used for academic study only; the confidentiality of information held by the Central Bank and the commercial banks along with the secrecy agreement was signed by all staff involved.

These two issues acted as the main limiting factor in the effective conduct of the investigations. (2) Available literature and data: there was a lack of literature relating to the portfolio profits of Libyan commercial banks; despite extensive investigation, no current studies have been located that have considered the very specific Libyan banking environment. (3) Conflict of interest: the researcher is a member of staff of the Internal Auditing Department at the Central Bank of Libya, while he was writing this thesis. This possibly had an influence on the conduct of the interviews with respondents in terms of their views, but the researcher tried to avoid bias in his analysis of data. The researcher and respondents were both informed that this study would contribute to the improvement of the development of the Libyan banking sector.

Although all the respondents were top and middle level managers, who had positions of responsibility across Libyan commercial banks and the Libyan Central Bank, they stressed that their names and the names of their banks were not to be associated with the results of the research. (4) time: the researcher faced problems in conducting sufficient interviews with respondents, this was due to two reasons; first, the time constraints of the field research; second, the timetable of interviews with informants, as all informants had responsibility in their banks and thus were extremely busy, but the researcher covered these problems by helping the department of training in the CBL to organise the personal interviews by arranging and contacting the departments of training in Libyan commercial banks. (5) Correlation Analysis: the research excluded several variables such as the financial crisis, liquidity risk, cash reserve ratio and statutory liquidity ratio due to their correlation with other variables. The researcher tried to overcome these problems in the qualitative data collection part of the study by putting questions regarding variables which were excluded from the quantitative data analysis.

10.5 Further implications of the research

This research has examined the bank profits in developing countries using data from Libyan commercial banks. To the researcher's knowledge, despite extensive investigation, no current studies have been located that consider the very specific Libyan banking environment. It is hoped that this research has provided a basis for future research and to building a good background for profitable banks portfolios, whether in Libya or other developing countries. In future researchers should focus on portfolio profits in ways that would provide decision makers enough information about important factors which have an impact on portfolios in commercial banks. The researcher suggests that the issue should be expanded on in future research.

Although much empirical work has been done with respect to the analysis of commercial bank portfolio profits and the measure of efficiency of banks in developed countries, the literature on bank portfolio profits in developing countries is sparse. So, this research is an effort in this direction, but without other research in this area, a more complete understanding of all aspects of bank profits will not be possible.

An efficient and sound monetary policy created by the central bank should be based on an accurate understanding of the behaviour of banks, which represent in most cases a major part of the economy. This will enable new theory development regarding portfolio profitability in developing countries and potential recommendations to be made to commercial banks in Libya. The research also revealed that there are many factors which affect the profits of commercial banks, either positively or negatively. Hence, further research may possibly be useful about what are the important factors which influence bank's profits, and also to compare the benchmarks established in this study with new research. In general, the research has achieved the research aim and objectives and it also raises areas for future research.

Consequently, the recommendations of this research can play a vital role in improving bank profits and also in developing the banking sector, and they also will aid in addressing the highlighted shortcomings in the portfolios of Libyan commercial banks.

In addition, the effects of these recommendations depend on policy makers in the Central Bank of Libya, and their acceptance of and implementation of aid to commercial banks to improve their portfolios. Although this research has provided several key findings, it cannot make generalisations, as this research was only carried out in Libyan commercial banks. In addition, due to the fact that Libyan commercial banks and other commercial banks in developing countries still need to improve their policy, the researcher has opened up this area for other researchers to investigate, through several questions applicable to further studies and investigation.

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Appendix

Table 1: Size of portfolios and Capital of Libyan Commercial Banks for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm	Growth rate of portfolios	Capital of Commercial Banks in LDm	Growth rate of Capital of Commercial Banks
1996	7214.3	-1.0%	140.0	-
1997	7722.6	7.0%	155.0	11%
1998	7861.7	1.8%	155.0	0%
1999	8158.9	3.8%	155.0	0%
2000	8631.1	5.8%	206.0	33%
2001	8742.8	1.3%	206.0	0%
2002	9970	14.0%	206.0	0%
2003	10141.2	1.7%	206.0	0%
2004	12242.8	20.7%	222.4	8%
2005	14584.4	19.1%	573.2	158%
2006	17079.4	17.1%	672.7	17%
2007	13813.1	-19.1%	960.2	43%
2008	34238.2	147.9%	1105.8	15%

LDm = Libyan Dinar million

Table 2: Size of portfolios and equity of Libyan Commercial Banks for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm	Growth rate of portfolios	Equity of Libyan Commercial Banks in LDm	Growth rate of equity of Libyan commercial Banks
1996	7214.3	-1.0%	491.5	-
1997	7722.6	7.0%	551.9	12.3%
1998	7861.7	1.8%	604.6	9.5%
1999	8158.9	3.8%	518.5	-14.2%
2000	8631.1	5.8%	564.1	8.8%
2001	8742.8	1.3%	730.0	29.4%
2002	9970	14.0%	764.7	4.8%
2003	10141.2	1.7%	793.9	3.8%
2004	12242.8	20.7%	8069.8	916.5%
2005	14584.4	19.1%	1057.1	-86.9%
2006	17079.4	17.1%	1200.9	13.6%
2007	13813.1	-19.1%	1661.4	38.3%
2008	34238.2	147.9%	2167.6	30.5%

Table 3: Size of portfolios and total of deposit liabilities of Libyan commercial Banks for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm (1)	Growth rate of portfolios	Total of deposits of commercial Banks in LDm (2)	Growth rate of deposits commercial Banks	percentage of 2 to 1
1996	7214.3	-1.0%	5879.0	6.8%	81.5%
1997	7722.6	7.0%	6039.6	2.7%	78.2%
1998	7861.7	1.8%	6577.8	8.9%	83.7%
1999	8158.9	3.8%	7117.8	8.2%	87.2%
2000	8631.1	5.8%	7463.0	4.8%	86.5%
2001	8742.8	1.3%	8386.2	12.4%	95.9%
2002	9970	14.0%	8707.8	3.8%	87.3%
2003	10141.2	1.7%	9567.2	9.9%	94.3%
2004	12242.8	20.7%	11278.7	17.9%	92.1%
2005	14584.4	19.1%	14263.6	26.5%	97.8%
2006	17079.4	17.1%	18212.9	27.7%	106.6%
2007	13813.1	-19.1%	25589.4	40.5%	185.3%
2008	34238.2	147.9%	42344.1	65.5%	123.7%

Table 4: Size of portfolios and total of deposits of Libyan Commercial Banks for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm (1)	Growth rate of portfolios	Total of deposit liabilities of commercial Banks in LDm (2)	Growth rate of deposits liabilities of Commercial Banks	percentage of 2 to 1
1996	7214.3	-1.0%	6170.1	4.9%	123.9%
1997	7722.6	7.0%	6450.8	4.5%	116.9%
1998	7861.7	1.8%	6772.4	5.0%	119.7%
1999	8158.9	3.8%	7265.7	7.3%	116.1%
2000	8631.1	5.8%	7582.1	4.4%	112.3%
2001	8742.8	1.3%	8476.4	11.8%	113.8%
2002	9970	14.0%	8769.1	3.5%	103.1%
2003	10141.2	1.7%	9599.6	9.5%	113.7%
2004	12242.8	20.7%	11278.7	17.5%	105.6%
2005	14584.4	19.1%	14263.6	26.5%	108.5%
2006	17079.4	17.1%	18212.9	27.7%	102.2%
2007	13813.1	-19.1%	25642.4	40.8%	93.8%
2008	34238.2	147.9%	42396.3	65.3%	53.9%

Table 5: Size of portfolios and total of assets of Libyan commercial Banks for the period 1997 – 2008

1996	7214.3	-1.0%	9673.0	8.3%	81.6%
1997	7722.6	7.0%	9528.5	-1.5%	74.6%
1998	7861.7	1.8%	9871.9	3.6%	81.0%
1999	8158.9	3.8%	10123.1	2.5%	79.6%
2000	8631.1	5.8%	10855.3	7.2%	80.6%
2001	8742.8	1.3%	11729.7	8.1%	79.5%
2002	9970	14.0%	12489.1	6.5%	74.5%
2003	10141.2	1.7%	13639.0	9.2%	79.8%
2004	12242.8	20.7%	15407.5	13.0%	74.4%
2005	14584.4	19.1%	18524.9	20.2%	79.5%
2006	17079.4	17.1%	23011.7	24.2%	78.7%
2007	13813.1	-19.1%	31176.1	35.5%	74.2%
2008	34238.2	147.9%	50315.7	61.4%	44.3%

Table 6: Size of portfolios and total of demand deposits of Libyan commercial Banks for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LD m (1)	Growth rate of portfolios	Demand deposits (liabilities) of Libyan Commercial Banks in LD m (2)	Growth rate of Demand Deposits	percentage of 2 to 1
1996	7214.3	-1.0%	3888.9	4.1%	53.9%
1997	7722.6	7.0%	3976.7	2.3%	51.5%
1998	7861.7	1.8%	4182.8	5.2%	53.2%
1999	8158.9	3.8%	4549.1	8.8%	55.8%
2000	8631.1	5.8%	4774.3	5.0%	55.3%
2001	8742.8	1.3%	5132.1	7.5%	58.7%
2002	9970.0	14.0%	5801.8	13.0%	58.2%
2003	10141.2	1.7%	6127.8	5.6%	60.4%
2004	12242.8	20.7%	7683.6	25.4%	62.8%
2005	14584.4	19.1%	9856.9	28.3%	67.6%
2006	17079.4	17.1%	13323.9	35.2%	78.0%
2007	13813.1	-19.1%	18329.1	37.6%	132.7%
2008	34238.2	147.9%	30216.3	64.9%	88.3%

Table 7: Size of portfolios and loans of Libyan commercial Banks for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm (1)	Growth rate of portfolios	loans of Libyan Commercial Banks in LDm (2)	Growth rate of loans	percentage of 2 to 1
1996	7214.3	-1.0%	3915.0	-8.6%	54.3%
1997	7722.6	7.0%	4165.9	6.4%	53.9%
1998	7861.7	1.8%	4530.2	8.7%	57.6%
1999	8158.9	3.8%	5203.6	14.9%	63.8%
2000	8631.1	5.8%	5584.0	7.3%	64.7%
2001	8742.8	1.3%	6057.6	8.5%	69.3%
2002	9970.0	14.0%	6357.8	5.0%	63.8%
2003	10141.2	1.7%	6775.1	6.6%	66.8%
2004	12242.8	20.7%	6510.3	-3.9%	53.2%
2005	14584.4	19.1%	6166.6	-5.3%	42.3%
2006	17079.4	17.1%	7067.2	14.6%	41.4%
2007	13813.1	-19.1%	8191.3	15.9%	59.3%
2008	34238.2	147.9%	10544.9	28.7%	30.8%

Table 8: Size of portfolios of Libyan commercial Banks and Money Supply for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm (1)	Growth rate of portfolios	Money supply	Growth rate of Money supply
1996	7214.3	-1.0%	9569.0	-
1997	7722.6	7.0%	9948.3	4.0%
1998	7861.7	1.8%	10358.1	4.1%
1999	8158.9	3.8%	11225.3	8.4%
2000	8631.1	5.8%	10934.2	-2.6%
2001	8742.8	1.3%	12288.4	12.4%
2002	9970.0	14.0%	13004.1	5.8%
2003	10141.2	1.7%	14051.8	8.1%
2004	12242.8	20.7%	15343.6	9.2%
2005	14584.4	19.1%	19821.6	29.2%
2006	17079.4	17.1%	23667.2	19.4%
2007	13813.1	-19.1%	24806.7	4.8%
2008	34238.2	147.9%	37151.5	49.8%

Table 9: Size of portfolios and excess reserves of Commercial Banks at Central Bank of Libya for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm (1)	Growth rate of portfolios	Money Base in LDm	Growth rate of Money Base
1996	7214.3	-1.0%	5281.2	-
1997	7722.6	7.0%	5592.8	5.9%
1998	7861.7	1.8%	5833.8	4.3%
1999	8158.9	3.8%	5586.4	-4.2%
2000	8631.1	5.8%	5404.8	-3.3%
2001	8742.8	1.3%	4170.6	-22.8%
2002	9970.0	14.0%	4007.5	-3.9%
2003	10141.2	1.7%	4037.9	0.8%
2004	12242.8	20.7%	4551.0	12.7%
2005	14584.4	19.1%	6759.0	48.5%
2006	17079.4	17.1%	8158.9	20.7%
2007	13813.1	-19.1%	10498.3	28.7%
2008	34238.2	147.9%	18233.9	73.7%

Table 10: Size of portfolios of Commercial Banks and Money Base for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm (1)	Growth rate of portfolios	Excess Reserves of Commercial Banks at Central Bank of Libya in LDm (2)	Growth rate of Excess Reserves	percentage of 2 to 1 (Idle cash)
1996	7214.3	-1.0%	1787.0	15.7%	24.8%
1997	7722.6	7.0%	1877.8	5.1%	24.3%
1998	7861.7	1.8%	1905.1	1.5%	24.2%
1999	8158.9	3.8%	1466.8	-23.0%	18.0%
2000	8631.1	5.8%	1323.9	-9.7%	15.3%
2001	8742.8	1.3%	1218.9	-7.9%	13.9%
2002	9970.0	14.0%	1249.4	2.5%	12.5%
2003	10141.2	1.7%	1911.9	53.0%	18.9%
2004	12242.8	20.7%	4657.3	143.6%	38.0%
2005	14584.4	19.1%	7065.9	51.7%	48.4%
2006	17079.4	17.1%	8819.1	24.8%	51.6%
2007	13813.1	-19.1%	14854.5	68.4%	107.5%
2008	34238.2	147.9%	24038.8	61.8%	70.2%

Table 11: Profits of Commercial Banks for the period 1997 – 2008

1996	211.2	36.4%	300.8	-
1997	183.4	-13.2%	227.4	-24.4%
1998	205.6	12.1%	232.0	2.0%
1999	261.5	27.2%	296.6	27.8%
2000	357.8	36.8%	383.3	29.2%
2001	454.0	26.9%	480.8	25.4%
2002	433.4	-4.5%	459.0	-4.5%
2003	484.0	11.7%	484.0	5.4%
2004	524.0	8.3%	507.6	4.9%
2005	579.5	10.6%	546.9	7.7%
2006	657.2	13.4%	602.5	10.2%
2007	734.9	11.8%	647.2	7.4%%
2008	812.6	10.6%	694.7	7.3%

Table 12: Size of portfolios and Profits of Commercial Banks for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm (1)	Growth rate of portfolios	Profits portfolios of Libyan commercial Banks (current prices) in LDm	Growth rate of profits Libyan commercial Banks
1996	7214.3	-1.0%	211.2	-
1997	7722.6	7.0%	183.4	-13.2%
1998	7861.7	1.8%	205.6	12.1%
1999	8158.9	3.8%	261.5	27.2%
2000	8631.1	5.8%	357.8	36.8%
2001	8742.8	1.3%	454.0	26.9%
2002	9970.0	14.0%	433.4	-4.5%
2003	10141.2	1.7%	484.0	11.7%
2004	12242.8	20.7%	524.0	8.3%
2005	14584.4	19.1%	579.5	10.6%
2006	17079.4	17.1%	657.2	13.4%
2007	13813.1	-19.1%	734.9	11.8%
2008	34238.2	147.9%	812.6	10.6%

Table 13: Libyan GDP for the period 1997 – 2008

Years	Libyan GDP (current prices) in LDm	Growth rate of Libyan GDP	Libyan GDP (constant prices) 2003=100	Growth rate of Libyan GDP
1996	12,327.3	15.5%	32,510.5	-
1997	13,800.5	12.0%	32,707.2	0.6
1998	12,610.6	-8.6%	32,843.3	0.4
1999	14,075.2	11.6%	32,636.8	-0.6
2000	17,775.7	26.3%	33,126.8	1.5
2001	21,618.7	21.6%	33,290.2	0.5
2002	30,330.5	40.3%	33,163.6	-0.4
2003	37,360.7	23.2%	37,423.4	12.8
2004	48,105.4	28.8%	39,678.8	6.0
2005	66,450.7	38.1%	44,087.2	11.1
2006	80,729.9	21.5%	46,583.6	5.7
2007	89260.3	10.6%	48,898.0	5.0
2008	105728.4	18.4%	50,225.1	2.7

Table 14: Contribution profits of Libyan commercial banks in Libyan GDP for the period 1997 – 2008

Years	GDP Million Dinar		Profits of Libyan Commercial Banks (current prices)	Contribution profits portfolios of banks in Libyan GDP (current prices)	Profits of Libyan commercial banks (constant prices) in LDm	Contribution Profits portfolios of banks in Libyan GDP (constant prices)
	GDP (current prices) in LDm	GDP (constant prices) in LDm				
1996	12,327.3	32,510.5	211.2	1.7%	300.8	0.9%
1997	13,800.5	32,707.2	183.4	1.3%	227.4	0.7%
1998	12,610.6	32,843.3	205.6	1.6%	232.0	0.7%
1999	14,075.2	32,636.8	261.5	1.9%	296.6	0.9%
2000	17,775.7	33,126.8	357.8	2.0%	383.3	1.2%
2001	21,618.7	33,290.2	454.0	2.1%	480.8	1.4%
2002	30,330.5	33,163.6	433.4	1.4%	459.0	1.4%
2003	37,360.7	37,423.4	484.0	1.3%	484.0	1.3%
2004	48,105.4	39,678.8	524.0	1.1%	507.6	1.3%
2005	66,450.7	44,087.2	579.5	0.9%	546.9	1.2%
2006	80,729.9	46,583.6	657.2	0.8%	602.5	1.3%
2007	89260.3	48,898.0	734.9	0.8%	647.2	1.3%
2008	105728.4	50,225.1	812.6	0.8%	694.7	1.4%

Table 15: Gross domestic product and average per capita income for the period 1997 – 2008

Years	Number of population	Libyan GDP (current prices)			Libyan GDP (constant prices) (2003=100)		
		Libyan GDP in LDm	Per capita from GDP (current prices) in LD	Growth rate of Per capita from GDP	Libyan GDP in LDm	Per capita from GDP (constant prices) in LDm	Growth rate of Per capita from GDP
1996	4,799,065	12,327.3	2,530.5	13.8%	32,510.5	5,323	-
1997	4,871,414	13,800.5	2,790.9	10.3%	32,707.2	5,318	0.1%
1998	4,944,854	12,610.6	2,512.4	-10.0%	32,843.3	5,324	-4.1%
1999	5,019,401	14,075.2	2,762.5	10.0%	32,636.8	5,107	2.7%
2000	5,095,072	17,775.7	3,437.0	24.4%	33,126.8	5,247	20.9%
2001	5,171,884	21,618.7	4,118.0	19.8%	33,290.2	6,341	-2.1%
2002	5,249,853	30,330.5	5,691.6	38.2%	33,163.6	6,211	11.2%
2003	5,328,999	37,360.7	6,906.7	21.3%	37,423.4	6,907	4.5%
2004	5,409,337	48,105.4	8,760.9	26.8%	39,678.8	7,218	9.8%
2005	5,490,886	66,450.7	11,922.3	36.1%	44,087.2	7,923	10.1%
2006	5,573,665	80,729.9	14,269.1	19.7%	46,583.6	8,722.8	-2.4%
2007	5,742,986	89260.3	15,542.4	8.9%	48,898.0	8514.4	1.2%
2008	5,829,565	105728.4	18,136.5	16.7%	50,225.1	8615.6	1.5%

Table 16: Size of portfolios of Commercial Banks and Libyan Inflation rate for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm	Growth rate of portfolios	Libyan Inflation rate (2003)	Growth rate of Libyan Inflation rate
1996	7214.3	-1.0%	106.0%	-
1997	7722.6	7.0%	120.0%	13.2%
1998	7861.7	1.8%	126.0%	5.0%
1999	8158.9	3.8%	127.9%	1.5%
2000	8631.1	5.8%	124.2%	-2.9%
2001	8742.8	1.3%	112.8%	-8.9%
2002	9970.0	14.0%	102.0%	-9.8%
2003	10141.2	1.7%	100.0%	-2.0%
2004	12242.8	20.7%	101.0%	1.0%
2005	14584.4	19.1%	104.0%	3.0%
2006	17079.4	17.1%	105.5%	1.4%
2007	13813.1	-19.1%	112.0%	6.2%
2008	34238.2	147.9%	123.7%	10.4%

Table 17: Size of portfolios and Liquidity of Libyan Commercial Banks for the period 1997 – 2008

Years	Size of portfolios of Libyan Commercial Banks in LDm (1)	Growth rate of portfolios of Libyan Commercial Banks in LDm	Liquidity in LDm (2)	Growth rate of Liquidity	Percentage of 2 of 1
1996	7214.3	-1.0%	2653.1	11.9%	36.8%
1997	7722.6	7.0%	2777.7	4.7%	36.0%
1998	7861.7	1.8%	2863.3	3.1%	36.4%
1999	8158.9	3.8%	2476.3	-13.5%	30.4%
2000	8631.1	5.8%	2435.4	-1.7%	28.2%
2001	8742.8	1.3%	2511.1	3.1%	28.7%
2002	9970	14.0%	2601.1	3.6%	26.1%
2003	10141.2	1.7%	3265.1	25.5%	32.2%
2004	12242.8	20.7%	6392.9	95.8%	52.2%
2005	14584.4	19.1%	9083.4	42.1%	62.3%
2006	17079.4	17.1%	11602.1	27.2%	67.9%
2007	13813.1	-19.1%	18777.4	61.8%	135.9%
2008	34238.2	147.9%	15189.8	23.62%	44.36%

Table 18: The interview questions

The interview questions	
Management	Do you think that banking behaviour in the selection of their portfolio composition (assets and liabilities) has an influence on the effectiveness of Libyan commercial banks in terms of profitability? Do you think that according to the theory of demand and supply at the beginning of each financial period, the Libyan commercial banks in their portfolio can determine the specific returns from each asset that constitutes the overall profitability? Do you think that the size of portfolios in Libyan commercial banks affect bank profits as a result of changes in the relative values of a bank's assets and liabilities via interest-rate swings? If yes or no, please explain in more detail. Do you think structural changes in depositors and borrowers in Libyan commercial banks have an impact on the size of a bank's portfolios, thus affecting on bank profits? If yes or no, please explain in more detail.
Regulations	Are the banking regulations in Libya barriers for commercial banks to expand into investments in order to improve their portfolios to maximise their profits? Do you think the time has come for consolidation in the banking sector, because it has become an important issue? Also in your opinion what are the advantages and disadvantages of this consolidation?
Environment	Do Libyan environmental factors (e.g. social factors, ect) have an impact on bank profits? If yes or no, please explain in more detail.
Bank capital	In Libyan commercial banks, do changes in capital requirements have an impact on the bank profits by increasing or decreasing the size of portfolios? If yes or no, please explain in more detail, and what kind of relationship?
Bank size	Does the bank size of the Libyan banking sector have an impact on the size of portfolios, thus on bank profits? If yes or no, please explain in more details.
Bank risks	How far do you think liquidity risk in a Libyan commercial bank has an impact on bank profits? If yes or no please explain in more detail. Do you think credit risk in a Libyan commercial bank has an impact on bank profits? If yes or no please explain in more detail. Do you think capital risk in a Libyan commercial bank has an impact on bank profits? If yes or no please explain in more detail.

Ownership	Does ownership of the bank (public and private) in the Libyan commercial banks impact the banking behaviour portfolios, or bank profits? If yes or no please explain in more detail, and what kind of the relationship.
concentration	Does market concentration in the Libya banking sector have an effect on bank profits portfolios by size of assets or deposits? If yes or no, please explain in more detail, and what kind of relationship?
Reform banking system	How far do you think that the reforms in the banking system in Libya have influenced on bank portfolio behaviour?
Inflation	Do Libyan commercial banks forecast future changes in inflation expectations? What procedures are adopted if there is inflation in the future, in order to maintain the same level of profits, e.g. restructuring of their portfolios or adjusting the interest rate and margins? Do you think that inflation increases banking profits in Libyan commercial banks more than reducing costs? What is the relation between inflation and bank profits?
Cyclical output	In Libya, does output cycle (particularly gross domestic production) have an impact on the size of Libyan commercial banks' portfolios, so does this lead to an effect on bank profits? If yes, please explain more in detail.
Economic activity	Is there a relationship between the average Libyan per capita income and the Libyan size of commercial bank's portfolio, thus effect on bank profits? If yes or no please explain in more detail?
Monetary policy	Due to an increase in bank investments in loans, how far do you think there is a relationship between the money supply and the size of a Libyan commercial bank's portfolio and bank profits? How far do you think there is a relationship between bank profits and the money base in the light of evaluating the impact of Libyan monetary policy on bank profits?
Time	How far do you think that sanctions by the UN and US (1991 - 2002) on Libya had an impact on banks` portfolio behaviour, in terms of its portfolio profits?
Financial crisis	Do the commercial Banks in Libya face problems with the liquidity crisis due to poor liquidity management of investments? If yes or no please explain in more detail. In recent years, has the Libyan banking sector been affected by global financial crises? If yes or no please explain in more detail.