



**THE ANALYSIS OF THE FACTORS AFFECTING PERFORMANCE  
MEASUREMENT IN LIBYAN BANKING INDUSTRY:  
A CONTINGENCY APPROACH**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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## **DEDICATION**

In the name of Allah most Compassionate most Merciful whose divine mercy has  
brought me this far.

This thesis is dedicated to all members of my family:

to the spirit of my Father,

to my Mother for her great continuous encouragement, and confidence in me

to my Wife for her patience and support,

to my children Bushra, Ebrahim, Mohamed, and Yamine.

## **ABSTRACT**

Academics and professionals have paid attention mainly to performance measurement systems that have implemented financial and non financial measures. However, the majority of previous studies were conducted in developed countries, but very little had been carried out in developing countries. Therefore, this study aims to investigate performance measurement systems in developing countries in twofold. Firstly, examine the existing uses of financial and non financial measures in Libyan banking industry and, secondly, analyze the contextual factors that may affect the use of these measures.

In order to fulfill this study's aim managers from top and middle managerial levels have participated to the survey. Data were collected through a series of quantitative and qualitative approaches while obtained data were analyzed by employing numerous statistical methodologies.

The study findings indicate that most of the Libyan banks use a mixture of performance measurement systems that include a combination of financial and non-financial measures. However, the Libyan banks are still relying on more financial measures than non financial measures as important information used for various purposes. In addition, several contextual factors represent the core of the study and they are of great importance for the use of performance measures according to banks' size within the banking industry in Libya.

This study contributes to bridge the gap in the literature of performance measurement by providing theoretical and empirical evidences of how performance measures could be used more proficiently in developing countries. Furthermore, the study's findings offer an overview of the performance measures used currently in Libyan banking industry and suggest the implementation of the outcome of this study that will instigate important improvements to the current performance measurement systems.

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## **OUTPUTS AND DISSEMINATION OF RESEARCH**

The following presents the outputs the researcher of this thesis has produced or contributed to during the course of his doctoral research.

### **1) Publications accepted for publishing**

- 1.1 Gumma Fakhri, Karim Menacere, and Roger Pegum, Performance measurement system in banking industry: a review of the evidence, The Journal of Performance Management that publish by the Association for Management Information in Financial Service.
- 1.2 Gumma Fakhri, Roger Pegum, and Karim Menacere, the impact of contingent factors on the use of performance measurement system in the banking industry: the case of Libya. Has chosen to be published in the Journal of Computational Optimization in Economies and Finance.

### **2) Conference Papers**

- 2.1 Gumma Fakhri, Karim Menacere, and Roger Pegum, (May 2009), The Impact of Contingent Factors on the Use of Performance Measurement System in the Banking Industry: The Case of Libya. Salford Postgraduate Annual Research Conference (SPARC), Salford, UK. May 2009.
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## **PARTICIPATIONS OF ACADEMIC EVENTS**

The following list shows the academic events the researcher has attended or participated during the course of his doctoral research.

- ESRC Seminar Series "Advancing Research in the Business and Management Field" on Business School at Northumbria University on 11<sup>th</sup> July 2008.
- Student Research Conference 13<sup>th</sup> June 2008 at Liverpool John Moores University.
- Northern Advanced Research Training Initiative (NARTI) 4th Annual Doctoral Colloquium 16<sup>th</sup> & 17<sup>th</sup> July 2008 Durham Business School.
- Faculty research degrees seminar "Doing the Literature Review" at Faculty of Business School and Law at Liverpool John Moores University on 14<sup>th</sup> November 2007.
- The 3<sup>rd</sup> Graduate Conference on Social Sciences and Management, Bradford University (8/9<sup>th</sup> October 2009).
- The ISBE 2009 Conference November 2009 in Liverpool.
- The Salford Postgraduate Annual Research Conference (SPARC) 2010, Salford University, 10<sup>th</sup> and 11<sup>th</sup> June.
- The 3<sup>rd</sup> Annual Doctoral Conference held by Liverpool business school at LJMU on 22<sup>nd</sup> June 2010.
- The 3<sup>rd</sup> international Conference on Accounting and Finance, Skiathos Island, Greece, August 26-27, 2010.
- The 2<sup>nd</sup> Annual BLW Research Student Conference 20<sup>th</sup> May 2009 at Liverpool John Moores University.
- The PhD Experience Conference at the University of Hull 17<sup>th</sup> 18<sup>th</sup> November 2008.
- The Salford Postgraduate Annual Research Conference 7-8 May 2009.
- The Postgraduate Researchers in Education Conference (PRIE) at Liverpool John Moores University, 27<sup>th</sup> June 2009.
- Northern Advanced Research Training Initiative (NARTI), 5<sup>th</sup> Annual Doctoral Colloquium 8<sup>th</sup> -9<sup>th</sup> July 2009, Lancaster University Management School.



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# CHAPTER ONE

## INTRODUCTION AND OVERVIEW

### **1.1 Introduction**

The purpose of this study is to investigate the current use of financial and non financial performance measures in Libyan banks, and to examine the impact of contingent factors on the use of these measures. Thus, this chapter introduces the research topic, provides background details, explains the study's purpose, highlights the study's significance and justification, outlines its contribution to knowledge, and describes its structure.

### **1.2 The rationale for this study**

Franco-Santos and Bourne, (2005) argue that one of most important function of modern management is performance measurement. The design and introduction of performance measurement systems in business organisations continues to be one of the areas in management accounting that creates a centre of attention a great deal of interest to both academics and practitioners (Azofra et al., 2003). In this regard, performance measures are applied to achieve multiple purposes such as evaluate, control, improve and compare the performance of different organisations, departments, branches, teams, and individuals, and to assess employees of organisations achieving their objectives (Ghalayini and Noble, 1996). In addition, Azofra et al., (2003) state that the literature of performance measures shows there are two main segments. The first segment began in the early 1900s' and went on the 1980s' which indicated the domination of the traditional financial measures such as profit, return on investment and productivity. During that period, budgets were the main system of performance measurement, which depended mainly on financial figures. Budgets have provided systemic processes in organisations, such as resource allocation decisions, performance target settings, and spending limitations (Barsky and Bremser, 1999). The second segment started since 1980s' which showed the emergence of non financial measures, such as customer satisfaction, quality, etc. Fisher (1992) proposes that there are several reasons for the emergence of non financial measures, namely, the limitations of traditional financial measures, competitive pressures and the increase of other enterprise. The limitations of traditional financial measures include, for instance, the fact that financial measures are too inner looking, too historical, too financially orientated, too short-term, fail to give data on quality, and fail to supply information on what customers desire and how competitors are performing (Kaplan, 1984; Johnson and Kaplan, 1987; Kaplan



and Norton, 1992; Kaplan and Norton, 1996; Ghalayini and Noble, 1996; Neely, 1999; Markovic and Vukovic, 2006). In the same context, Neely (1999) suggests exactly seven reasons for this performance measurement expanding, namely, changing nature of work, increasing competition, specific improvement initiatives, national and international awards, changing organisational roles, changing external demands and power of information technology. Moreover, Neely and Bourne, (2000) conclude that limitations of financial measures have resulted in the recognition that financial measures are limited in providing a complete profile of organisational performance. Therefore, In order to overcome the limitations of financial measures and face the changes in business environment, the need emerges to complement financial measures with the introduction of non-financial measures (quantitative and qualitative) which appear to be more suitable, to follow operations closely and in real time, therefore making it possible to conduct revisions and corrections as needed (Ghalayini and Noble, 1996, and Azofra et al, 2003).

Since last decade, organisations have changed performance measurement systems from dimensional financial measures to incorporate non financial measures to evaluate performance (Barsky and Bremser, 1999). In this context, one of the most popular performance measurement systems that integrate a balanced use of financial measures with non financial measures is the Balanced Scorecard. It was developed as a framework for implementing strategy by Kaplan and Norton (1992) and (1996).

Kaplan and Norton (1996) designed the Balanced Scorecard framework to appraise the organisation's performance from four perspectives. The first perspective is financial which addresses the ways in which the organisation can maximize value creation for shareholders. The second is customer perspective that helps the organisation to accomplish customers' requirements and to maintain their loyalty. The third is internal business process perspective which addresses the topics in which the organisation can have competitive advantages. The fourth is learning and innovation perspective that assists the organisation to know how to sustain its ability to change and improve.

The rationale behind this research comes from its importance to the activities of managers especially the decision making processes all different managerial levels of organisations. Also, this research has adopted the philosophical theory as recommended by the literature (Eisenhardt, 1989), which is the contingency theory.



The use of a contingency framework to management accounting is derived from the hypothesis that there is no universally proper accounting system which is used equally in all organisations in all circumstances (Otley, 1980). Rather, it is recommended that particular characteristics of a suitable accounting system will depend upon the specific circumstances in which an organisation operates. Therefore, a contingency theory must recognize the specific aspects of an accounting system which are correlated with some defined circumstances and reveal an appropriate matching. In addition, Otley (1980) argues that the justification for adopting a contingency theory of management accounting is that it emerged as a necessary means of interpreting the results of empirical research.

In an attempt to understand the performance measurement systems, this study utilises the contingency theoretical framework to examine the relationships between several contextual factors and the use of financial and non-financial performance measures. The contextual factors consist of business strategy, centralisation, the intensity of competition, the use of total quality management, technology, environmental uncertainty, and organisation size.

From the broad review of the literature (see chapters three and four) about performance measurement from contingency perspective, it could be concluded that there is wide research of this topic in developed countries like the US whereas there is very little research which is carried out to explore this topic in developing countries. With regard to management accounting research in Libya, it could be found that there is very minor number that investigated the management accounting practices within manufacturing sector, while there is hardly any research, which to the best my knowledge, has been conducted to study performance measures in Libyan banking sector. As a result, the main drive for conducting this study is to bridge the gap in the literature about performance measures in banking sector within developing countries with Libya as a case study.

Concerning research in developing countries, many authors (e.g. Kiggundu et al, 1983) declare that the importance of research in developing countries has increased, this is because of the huge natural resources and about 70% of the world's population are in developing countries, also due to globalisation and internationalisation. As a result of economical growth some developing countries e.g. Libya, have become attractive to foreign investors. The Libyan economy after



the openness that started in 1990s' has benefited from this development in all economic sectors including banking.

The lack of literature on performance measures in developing countries, particularly in banking sector, has led to creation of an urgent need to understand the use of performance measures and their implication within banking sector in Libya, as the nature of the use of these measures is still uncertain, this has provided the motivation for conducting this study. Therefore, this study focuses on expanding the literature by investigating the state of current use of financial and non financial measures in context of performance evaluation. Also as mentioned by many authors (e.g. Langfield-Smith, 1997 and Chenhall, 2003) that the effectiveness of management control systems (i.e. performance measurement systems) is dependent on their relationship with some key contextual factors (e.g. strategy, environment, technology, organisational structure). This study, therefore, tries to identify some factors that may influence the use of financial and non financial performance measures.

### **1.3 Research Questions and Objectives**

Given the breadth of the performance measurement field, it was important to focus this research on a specific area in order to be able to reach useful conclusions. Thus, the question of this research consists of two parts: (1) what are the performance measures that are currently used in the banking sector in Libya? and (2) what are the factors that might affect the use of these measures?. The first question aims to investigate the current use of financial and non financial measures of performance measurement systems in banking industry in Libya. The second question intends to examine the impact of contingent factors on the use of these measures. To answer the questions of this study, six specific research objectives have been developed:

- 1) To review and study the state of performance measurement systems in general, and the state and extent of using financial and non financial performance measures in particular in Libyan banks.
- 2) To identify and compare the type of performance measures that are utilized by Libyan banks according to their typologies.
- 3) To assess the application of financial and non financial measures for evaluation performance and different purposes.



- 4) To examine whether the use of financial measures has impacted upon the use of non financial measures of the Libyan banks.
- 5) To determine the impact of individual contingent factors on the use of different performance measures.
- 6) To analyse the impact of joint selected factors on the use of financial and non financial measures in Libyan banks.

Therefore, the first four objectives will establish comprehensive view of the current use of financial and non financial measures in the Libyan banks, while the rest two objectives will create the factors that may have affected the use of performance measures.

#### **1.4 The Importance of the Study**

Although there is growing attention in the literature to study the issues regarding the use, design and choice of performance measurement systems, however, this attention has focused more on developed countries with little interest to developing countries. Consequently, the rationale behind conducting this study comes from the need to gain better understanding about the state of performance measurement systems in Libyan banking sector and contextual factors that may affect the use and design the performance measurement systems.

The last two decades witnessed the increase of globalisation and internationalisation, and the changes of business environment in some developing countries, which may lead to influence the design, form and use of the organisational accounting systems. Consequently, it became very important to know and be aware of what is going on in the developing countries. In case of Libya, the processes of transition of the Libyan economy from a centrally planned (socialism) towards a market-based system that started late in the 1990s' and included fundamental changes in the regulatory context, which has reduced the domination of the state-owned sector over the Libyan market (Sharif, 2000). In other words, the deregulation of the system has also allowed for a greater role for the private sector in the domestic market. Several processes were established to ensure a successful shift towards the new markets, such as encouraging the private ownership of economic activities, reducing the role of the state to be limited to some public

activities such as health, education and security, and privatising state-owned organisations (Sharif, 2000) such as Sahar bank and Wahda bank.

Therefore, it could be concluded that, regarding the Libyan economy, there is move towards a new business environment, especially organisations that are state-owned, encounter increased competition causing deterioration in their financial performances. As a result, this study investigates a very important issue that will be of interest to academics and current and potential investors in Libyan banks. Hence, the findings of this study contribute to bridging the gap in the literature in developing countries concerning performance measures and the factors that might affect the use of these performance measures in banking industry.

### **1.5 The Need for the Current Study**

Scapens. (1994) suggests that researcher should give more attention to management accounting practice rather than focus on comparisons of management accounting practice versus theoretical ideals. Briekley et al., (2001) and Cooper et al., (2004) emphasise the need for more empirical research of management accounting practices, especially outside the UK. Further, the need of conducting more research on management accounting practice has been mentined by many researchers over the last two decades (see, for example, Otley, 1983; Scapens et al., 1983; Scapens, 1991; Drury and Tayles, 1994; Drury and Tayles, 1995; Briekley et al., 2001; and Haldma and Lääts, 2002).

In response to the call for more research on management accounting practices in developing countries, and there is no evidence that such research about performance measurement is conducted in Libya, the researcher decided to conduct this study in Libyan banks, in order to investigate the extent of the use of financial and non financial measures of context of performance evaluation within Libyan banks. In addition, the empirical research of contingency-based highlights the importance of examining factors that influence management accounting practices (e. g. Scapens, 1983; Drury and Tayles, 1995; Chenhall and Langfield-Smith, 1998; Brierley et al., 2001; Haldma and Lääts, 2002; Gerdin and Greve, 2004). Thus, this study aims also to examine the contingent factors that may influence the use of financial and non financial measures within Libyan banks.

### **1.6 Structure of This Thesis**

The main issues addressed in this study are the use of financial and non financial performance measures in the Libyan banks, in addition, the contingent factors that may influence the use of financial and non financial measures. Therefore, this thesis consists of ten chapters.

**Chapter One** is an introduction to this thesis. It introduces the background of the study area, discusses the objectives and the relevance for this study, explains the empirical phases and gives an outline of all the chapters.

**Chapter Two** discusses the historical, political, economic, social, cultural and financial aspects of Libyan society and the background about the Libyan Banks' environment are presented. The changes in the political, economic and social aspects over the years are emphasised. Moreover, a descriptive analysis of the organisational context of and the developments in the banks are provided in this chapter. This will provide a background on which the observations of this study can be interpreted and understood.

**Chapter Three** provides a brief analysis of management control systems with a brief historical overview of the development of management control systems, and it also reviews several concepts regarding performance measurement systems in addition to some of the roles of performance measurement systems are mentioned., and the chapters analyses the existing literature concerning the theme of financial and non financial performance measures from previous related empirical studies. The chapter highlights several gaps in the performance measurement literature and the need for more empirical research on management accounting practice, especially in developing countries.

**Chapter Four** reviews the literature related to contingency theory perspective, and the contingent factors that affect the use of performance measures. Several issues are illustrated, including the concept of contingency framework and the research approaches used to investigate this phenomenon, and a large number of studies conducted in both developed and developing economies are reviewed to provide the main characteristics of the previous research in the area. In order to identify the gap in this literature and the current study's contribution to fill this gap/shortage is highlighted.

**Chapter Five** discusses the methodology and methods applied to conduct this research to achieve the research aims and objectives. Details of research questions,



the study hypotheses, how the researcher will measure the use of financial and non financial measures, the particularities of banks, and collect the data for this study are all presented in this chapter, the research framework based on contingency theory is illustrated, and the two research methods of the questionnaire survey and the semi structured interview method are explained. In addition, the statistical techniques used to examine the research questions and hypotheses and to analyse the collected data are also discussed.

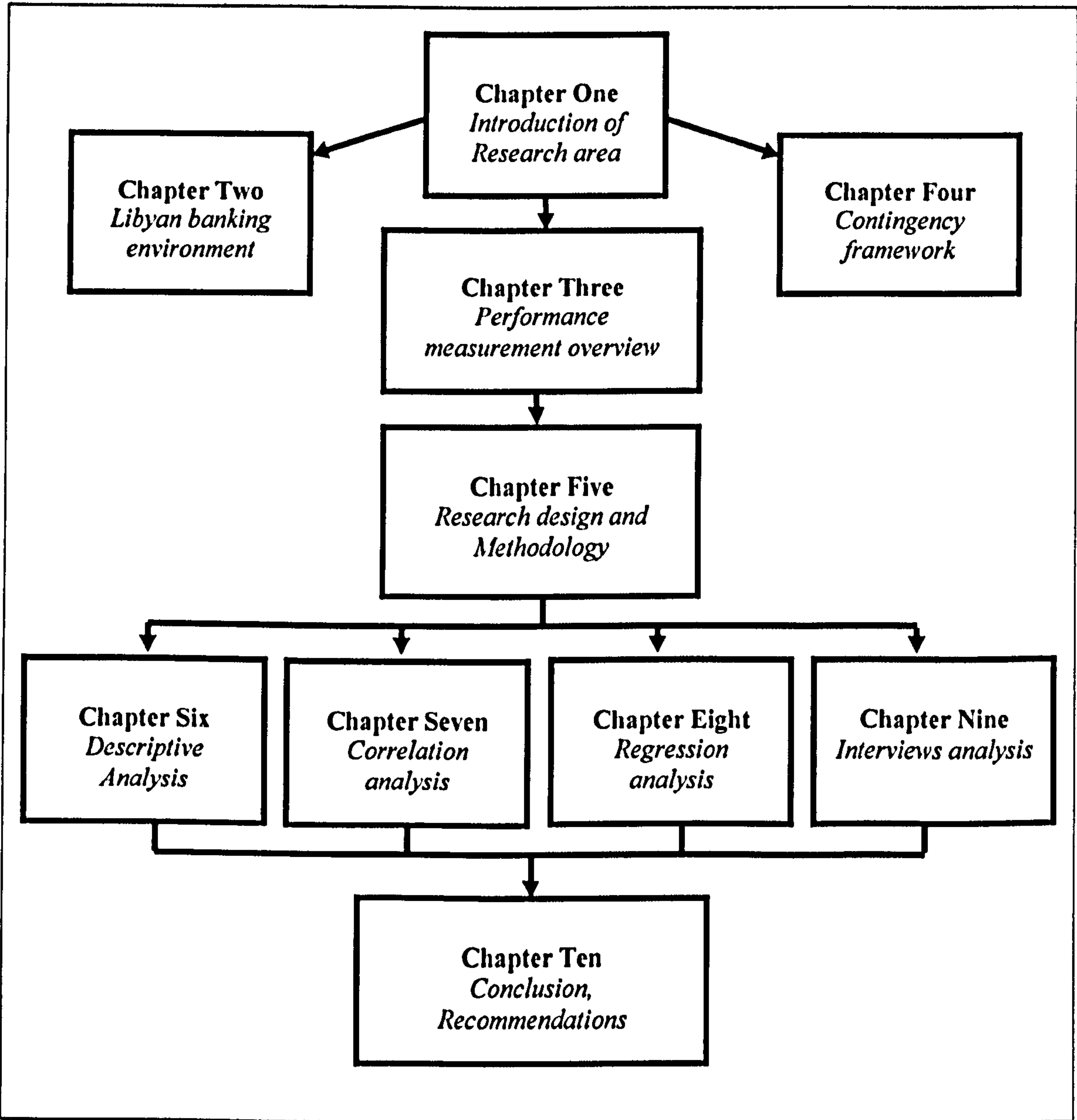
**Chapter Six** analyses the data collected using the questionnaire survey and reports the results of the analysis. This chapter will help to fulfil the first objective of this study, namely, to obtain an overview of the extent to which type of performance measures used in different typologies of Libyan banks. In addition, chapter six provides the first empirical chapter of the thesis. It aims to statistically analyse the data gathered by the questionnaire survey in order to provide a comprehensive picture of the performance measures used in Libyan banks and the different uses of these measures among the banks according to their particularities/typologies. This analysis is based in some cases on means and in others on percentages. In addition, the chapter provides a base for the following chapter in which the hypotheses are examined.

**Chapter Seven** examines the relationship between the suggested contingent factors and the extent of using financial and non financial performance measures. This examination is conducted using correlation statistical analysis. Each factor is tested individually against the dependent variable which is the extent of using financial and non financial performance measures. Pearson correlation tests are used to accomplish this objective. The analysis results are used to support or reject the hypotheses. Moreover, results are compared with previous empirical studies. **Chapter Eight** investigates the relationships identified in chapter seven using more advanced statistical analysis. Multivariate statistical analysis is used to find out the relationship between all the contingent factors together and the extent of using financial and non financial performance measures. Multiple regression analysis illustrates the joint influence of these factors on management accounting practice and which of these factors best explain the variation in the extent of using financial and non financial performance measures. The above-mentioned analysis is conducted mainly on questionnaire responses.

Chapter Nine discusses data obtain from personal interviews. This chapter will present the results from conducting face-to-face interviews with respondents from some managers of Libyan banks.

Chapter Ten is the final chapter, which presents a summary of the thesis contents and overall conclusions drawn from the findings and makes recommendations and suggestions for further research.

Figure 1.1 shows the structure of this thesis



1.7 Summary

This chapter has explained the contents of the thesis. It has highlighted the rationale behind conducting the study, followed by the research aims and objectives and then has outlined the structure of the thesis. The following chapter will discuss the

characteristics of the Libyan business environment and the main changes which have taken place in this environment since the independence of the country.



## **CHAPTER TWO**

### **THE CONTEXT OF THE LIBYAN BANKING SECTOR**

## **2.1 Introduction**

In order to obtain a better knowledge for studying accounting systems in any country, the economic environment in this country should be taken into account (Jaruga and Ho, 2002). Consequently, the Libyan political; social; and economic environments that may affect the use of accounting systems like performance measurement systems will be discussed. The aim of this chapter is to provide details about development of Libyan economic context and to highlight the nature of the Libyan banking sector.

This chapter is divided into six sections. The first section discusses the justification for studying the Libyan context. Brief information about geography, population, historical, political and economic aspects is provided in the second section. The third section is an overview and discussion of the Libyan banking sector environment and highlights the main structures and characteristics of the sector. Several major financial indicators for development of the Libyan banking sector is in section four and the fifth section is a brief discussion of the expected impact of the current financial crisis on the Libyan banking sector. Finally, a summary of the previous discussions is offered in the sixth section.

## **2.2 The Justification for Analyzing the Libyan Context**

Previous studies, especially in developing countries (see for example, Hoque and Hopper 1994, Al-Enizi et al, 2006, and Ismai, 2007), have revealed that one of the main determinants of design and use of performance measurements is the economic environment around an organisation, namely, the change in environmental aspects that will result in the change in performance measurements used within the organisation. Jaruga and Ho, (2002) argue that in order to survive and succeed companies should adjust to market changes. They claim that specific characteristics of the country affect management accounting practices regarding the adoption and the use of these practices. In addition, Bhimani and Pigott, (1992) suggest that, organisations that operate in the same circumstance can show similar implementations for accounting practices. These implementations have been shaped and formalized by their environment. Similarly, Alkizza, (2005) points out that environmental factors such as the level of competition, uncertain environment, and government regulations have an important effect on management accounting practices used in Libyan manufacturing companies.



Based on the discussion above, it could be said that the rationale for offering a brief background about the Libyan environment in which this study is conducted, is helpful as to the use of performance measurements and factors that affect them could not be investigated in isolation of the surrounding environment in terms of economic, political and social aspects. These interrelated aspects may influence institutions' and individual's values, attitudes and behaviour towards and about the use of performance measurements and contingent factor relationships. Therefore, awareness of these environmental aspects around organization play a role in designing and shaping accounting systems lead to a clear understanding of the use of performance measurements and contingent factor relationships.

## **2.3 The Libyan Context**

### **2.3.6.1. Geographical background**

The formal name of Libya is Socialist People's Libyan Arab Jamahiriya. Libya is in the north-middle part of Africa on the Mediterranean Sea and Egypt on the east, Algeria and Tunisia on the west, and Chad, Niger and Sudan on the south. Libya's area is one of the largest in Africa, it is about 1,759,540 km. Tripoli is the capital and largest city and Benghazi is the Second city. About 90 percent of Libya is desert, with two small areas of hills rising to about 900 km in the Northwest and Northeast. The climate is generally dry, but the northern regions enjoy a milder Mediterranean climate. The main resource of Libya is oil, and natural gas (Library of Congress, 2005).

### **2.3.6.2. Population**

In terms of economic development, human resources are the most important aspects of any country as a whole and for the improvement of any sector in this country. From the table below, it can be noted that over the period 1970-2006, The Libyan population has significantly increased from 1,879,000 in 1970 to 5,323,000 in 2006. Approximately 90% of people live in the main cities, while the rest are in the countryside (see table 2-1, the growth of the Libyan population).



**Table 2-1 the growth of Libyan population during 1970-2008**

	1970	1980	1990	1995	2000	2006	2007	2008
Libyan	1,879,000	2,804,600	4,140,000	4,389,700	5,021,400	5,670,600	7,210,510	7,364,070
Non Libyan	84,000	441,200	703,800	408,300	405,400	350,000	972,510	1,103,790
Total	1,963,000	3,245,800	4,843,800	4,799,000	5,426,800	6,020,600	8,183,020	8,467,860

### 2.3.6.3. Resources Statistical Institute of Catalonia (Idescat), 2009

### 2.3.6.4. History

From the seventh century, Libya with several other North African countries were no longer part of the European world, but were included in the Islamic and Arab culture. During the period from 1551 to 1911, Libya became part of the Turkish Empire. In 1911, Libya was colonized by the Italians for over thirty years until 1945 when the Allies prevailed in North Africa. After 1945 Libya was dominated by two international administrations: the French Military administration governed the Southern Region while the British Military administration dominated the Western and Eastern Regions in Libya. These administrations did not provide economic opportunities to develop and improve the Libyan economic system and their impact was small because of their lack of communication with the Libyan people (Wright, 1982). In 1951, Libya became an independent nation under a kingdom and after nineteen years from independence the kingdom was toppled by the military in 1969 who subsequently planned for the first September Revolution. In 1992 the United Nations imposed economic sanctions against Libya because the U.S. and the UK courts charged the Libyan Government with two attacks in 1988 against commercial flights. In March 1999, after agreement with the Libyan government, the US, and the UK and the United Nation Security Council lifted the economic sanctions (Vandewalle, 2006).

It could be concluded that the development of Libyan history dates back to the Turkish period which led to the conversion of the people to perform some economic activities like farming. The British and French administrations did not provide an enabling environment for commerce. This was followed by military rule with its associated negative factors, which led to the imposition of economic sanctions. However, the effects of the sanctions led to isolation of the banking system from international business, in addition extra responsibilities for the Central Bank of Libya in terms of their monitoring and supervisory roles. Recently the Libyan



government has introduced some reforms within the banking system such as the adoption of privatization programs.

#### **2.3.6.5. Political System**

Libya enjoys the advantages of a dynamic economy, renewal of political and economic directions, and new orientations that arise from the government's moves to leave its role as a distributor of wealth in favour of more limited responsibilities as a regulator and social policymaker. Internally, for more than thirty years, Libya has enjoyed stability and a high level of the political participation, but not through traditional democratic processes. Rather, the country's political institutions adopt the model of consultative bodies at the local, regional and national levels. (Oxford Business Group, 2008).

From 1969 to 1977, Qadhafi and twelve military officers dominated Libya's political system, society and economy. Nationally, political structure of Libya came from the philosophy in the Green Book (Qadhafi's directives) which joins socialist and Islamic theories and eliminates parliamentary democracy. During this period, the government began diffusion of "Cultural Revolution" across the country in schools, businesses, industries, and public organizations to administer management of those institutions in the public interest (Library of Congress, 2005). In March 1977, Qadhafi proclaimed the establishment of people's power and changed the country's name to the Socialist People's Libyan Arab Jamahiriya, thus the primary authority of Libya is the General People's Congress, which became a law-making body, in addition it links up with the General People's Committee, whose members are secretaries of Libyan ministries. It acts as the link between the masses and the leadership and it contains the secretariats of a number of local basic popular congresses. The cabinet secretaries are appointed by the General People's Congress. These cabinet secretaries are responsible for the routine operation of their ministries (Library of Congress, 2005).

With regard to the Libyan court system, it consists of three levels: the courts of first instance; the courts of appeals, and the Supreme Court, which is the final appellate level. The General People's Congress selects judges to the Supreme Court. Libya's justice system is essentially based on Islamic law. In many cases, the laws and regulations of Libya are the same in many countries, however, the Libyan context is



characterised by some important Laws and regulations such as: The Civil Law, Financial System law, Foreign Trade Regulations, the Income Tax Law, The Banking System Law, and the Law of Organising the Accounting Profession (Library of Congress, 2005).

#### **2.3.6.6. Economic Environment**

This section provides details on the development of the state of economic environment since 1951 to date.

##### **2.3.5.1.The period before the discovery of petroleum 1951-1965**

Wright, (1982) argues that Libya was one of the poorest countries in the world and it relied on international aid from the United Nations and American and British money for the use of military bases and other organisations which helped the country to survive and overcome the harsh economic years of the 1950's. During this period, Wright, (1982) argues that the main economic activities were dependent only on two sectors (Animal farms and Agriculture), where approximately 80% of the workforce were involved in these sectors which were developed by Italians while the remainder were engaged in other sectors. In addition, this period was characterised by international companies searching for oil and other technical assistance from abroad to improve Libya's society. Abbas, (1987) claims that the metal left over from the Second World War was the first exports. Furthermore, Wright, (1982) concludes that during this period the economy was in a poor position where there was no production of equipment, limitation of funds, lack of skilled workforce, and other resources for social and economic development of the country.

Bakar, (1997) indicates that, according to experts from the United Nations, in the period before discovery of Oil, there was no evidence of any progress in the Libyan economy. In addition, in this period (1951-1965), the Libyan economy faced huge difficulties, because it had suffered from deficits in the balance of payments, and in the budget, (Abbas, 1987), which was funded by the Italian government, the military administrations of the UK and France, and the foreign aid and rents of military bases to the USA and UK (Bakar, 1997).

##### **2.3.5.2.The period after the discovery of petroleum**

In the first half of 1960s' petroleum was discovered and production started and was exported in commercial quantities (Wright, 1982). As a result of this, the Libyan



economy started to develop, but was primarily reliant on the income from oil products, which comprised of practically all export revenues and about 53% of Libya's Gross Domestic Product in 2007. These revenues with a small population in the country is one of the higher Gross Domestic Products per capital in Africa and have permitted Libya to give a comprehensive level of social welfare, particularly, in the fields of housing and education. The other industries, which show approximately 47% of Gross Domestic Product in 2007, have expanded from processing mostly agricultural products to include the production of petrochemicals, iron, steel and aluminium. As a result, the Libyan economy is different from economies of other developing countries regarding lack of capital formation. On the other hand, the Libyan economy has a number of critical problems such as a high level of inflation, lack of skilled labour, heavy dependence on the oil sector and low rate of private capital formation.

During the period before the Libyan revolution (1951-1969), the Libyan economic system was mainly capitalist where private ownership existed with limited government intervention while public ownership was in the sector that required large scale investment. In addition, the government introduced a number of policies to improve the economy such as the establishment of private businesses, the establishment of Industrial and Real Estate Bank of Libya<sup>1</sup> to supply finance to create small enterprises, and the establishment of the Industrial Research Centre to aid in needing the country's development plans by providing technical and economic services in both the public and private sectors. New import and export regulations demanded that the import of competing foreign goods be subject to licence (Bakar, 1997).

However, the period from 1970s' up to 1991, several actions were taken by the revolutionary government to change the economic situation from a capitalist to a socialist economy where the intervention in the economy has increased and the government supported the public sector and neglected the private sector. This situation continued until the beginning of 1990's, when the Libyan government decided to adopt a market economy. The reason for this was the crisis in the Libyan economy that takes place when there is a fall of world oil prices, and economic sanctions (imposed by the US/UK). As a result of these crises, the Libyan

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<sup>1</sup> It is currently known as the Development Bank



government introduced a set of economic and political reforms such as privatising many public enterprises including banks. The aims of these reforms were to cut public spending and to enhance private sector initiatives in different sectors (Vandewalle, 2006).

The first set of reforms started at the beginning of 1990's, allowed the people to be productive through creating self-management or collective ownership businesses. For example, in 1992, the government issued Act number (9) authorizing and improving the private sector activities within the national economy and to begin the privatisation of a number of public sector companies. In 1997, the country passed Act number (5) regarding the invitation for foreign capital investment. Therefore, the Libyan economy includes three key sectors that shape the economic structure: namely, the oil sector, the public sector and the private sector. Since the early 2000's the development of economic reforms has continued as the State attempts to rejoin the international community. For example, Libya has applied for membership of the World Trade Organisation (WTO) and has become a new observer member, many public enterprises are being privatised, the US and UN sanctions were lifted and many international oil companies have returned to the country (Otman and Karlberg, 2007).

#### **2.3.5.3. Development Plans**

Kilani, (1988) argues that since 1951, in order to develop the Libyan economy, several development plans have been put in place. These plans aimed to achieve some strategies: Firstly, diminishing the heavy reliance on petroleum revenues in favour of agricultural and manufacturing sectors. Secondly, accomplishing larger level of self-support in an extensive range of industrial and agricultural products. Finally, supporting and encouraging national manpower instead of foreign manpower in oil industries. Kilani, (1988) claims that in 1951 the first plan focused on supplying some principal services, for instance healthcare and education, in addition to improving some essential economic activities, for example agriculture and smaller industries. However, some barriers such as the shortage of economic resources, a lack of education and training programmes, and lack of technical and managerial skills, have achieved little successes (Kilani, 1988).



The second development plan was set up in 1963. Saleh, (2001) maintains that to develop the deficit in the Libyan economy, the second plan concentrated on agriculture, education, health, and communication development. The discovery of petroleum in 1964 had affected the funding for this plan, which increased from Libyan Dinar (LD) 170 million to about LD 500 million. For the first time, this plan was totally financed by Libyan resources and designed by Libyans (Kilani, 1988).

The third development plan started in 1973, in order to achieve an increase of an annual rate for GDP. This plan aimed to minimise the reliance on oil earnings (Saleh, 2001). In addition, over this period, more than 100 small enterprises were established. Moreover, until the late 1970s, the Libyan economy was a combination of state-owned and private activities, except in the fields of the oil industry, banking and insurance (Saleh, 2001).

In the next plan was in 1976-1980, this plan aimed to encourage the non-oil sectors to be self-sufficient, consequently, the largest share of investment expended to agriculture, industry, and the transportation and communication sectors (Saleh, 2001). Once again the plan's objectives in 1981-1985 aimed to improve the existing industrial and agriculture sectors. More precisely, the aim was to increase the annual growth rate for the non-oil sectors and for the whole economy (Saleh, 2001).

The final development plan was in 1994-1996, which concentrated also on industry and agriculture, with a proposed investment of LD 2.4 billion (Saleh, 2001). This could be caused by the UN sanctions imposed on Libya in 1992. However, Saleh, (2001) argues that there were a number of reasons that led the plans to be unsuccessful to achieve their goals, such as lack of skilled and semi-skilled manpower, domination of the state over economic activities that make it possible for mismanagement of economic resources, lower productivity levels, higher production costs, lower quality, weak control in the public sector and lower return on capital.

#### **2.3.5.4.The Recent Economy of Libya**

Although oil revenues allow the development of the whole Libyan economy, the state has adopted some measures to reduce the dependence on this limited source. These actions include for example, adequate training, education and public relations development. However, during the UN sanctions period, the Libyan economy

suffered from many problems such as an economic downturn leading to imbalances which influenced the effectiveness of the production system (Kilani, 1988). Central Bank of Libya, (2007) reported that this economic imbalance created three main issues that affected the development of the Libyan economy. This can be summarised as follows: Firstly, the economy has become more dependent on oil income to solve imbalance. This caused serious problems that impacted on future plans of strategic-development, because the oil price is unstable and it is affected by external factors. Secondly, the dependence on the external markets namely, the Libyan economy is heavily reliant on foreign suppliers. The third issue is the dependence on foreign workforce due to insufficient skills in the national workforce. Foreign manpower is used to accelerate the transfer of technology needed by the development plans.

#### **2.3.5.5.The growth of the private sector**

Fayad, (2003) indicates that most essential element in market-based economy is the private sector and privatisation of public organisations. Thus, the government issued Act (8) in 1988, which authorized the private sector of economic activities to start work. In addition, the establishment of Act (9) in 1992 aim to control and improve the function of the private ownership in all aspects of the economy, agriculture, industry, commerce, transport and banking (Bait-El-Mal, 1999). Furthermore, Sharif, (2000) asserts that the resolution number (300)/1993 gave more authority for the private sector to possess the major enterprises in Libya (i.e. educational and health enterprises). As a result of this more than 120 public enterprises were privatised and more than ten thousand private ownership enterprises were established within different sectors during 1993-1997. The table 2-2 shows the development of the private sector from 1984 to 2000.

The table (2-2) shows the increase in the private sector in Libya between 1984 and 2000. It highlights the number of public companies which were reduced from 10,310 to 7,624 over the period, whereas the number of private companies (including small businesses) sharply increased from 18,649 to 107,481 during the same period.



**Table (2-2): The growth in the private sector in Libya**

Business sector	State-owned units	Private units	Foreign units
1984	10,310	18,649	2,246
2000	7,624	107,481	2,766
Difference	(-) 2,686	(+) 88,832	(+) 520

*Source: Alsharif (2002)*

Thus, it could be concluded that based on the new policies the economy created about 88,832 small private businesses. On the other hand, the number of foreign firms has slightly increased from 2,246 to 2,766, and the only growth was in 520 foreign firms especially in oil sectors and banking industry. The reason for this was the UN sanctions imposed on Libya between 1992 and 1999.

Furthermore, the government aimed to transfer the public sector into the private sector, encouraged the private sector and monitor the overall economy (Alfajori et al 2002). In addition, the government listed more than 360 public enterprises to privatise before 2008, but this plan has been stopped and only about 50 enterprises have been privatised (Alfajori, 2004).

#### **2.3.5.6. Foreign investments**

In order to encourage the foreign capital to invest in the Libyan market, the government has established the Law (5) in 1997. Three purposes were behind introducing this law: (1) to guide Libyan organisations to improve their technological system. (2) to diversify the sources of revenues. (3) to develop national products to aid Libya's access into the global markets. In addition, according to this Law the foreign investment has supported different sectors. For instance, exemptions from taxes are given to some foreign investment contributed to improvement in the Local economy (Alfajori et al 2002). Although incentives and allowances have been given to encourage foreign investment, the level of investment was almost nonexistent (Alfajori, et al, 2002). The reason behind this was that Libya has still unclear investment area where there is no enough experiences like policies to deal with new investments. The majority of these investments came from Europe, followed by Asia and very few came from the neighbouring Arab countries. The majority of foreign investment was in the oil, tourism and banking sectors (Alfajori, et al, 2002).



### **2.3.5.7. Libyan Stock Market**

The Libyan Stock Market was established on June 2006, based on decree (134) of the General People's Committee, to form a joint stock company with capital of 20 million Libyan dinars (DL) (Libyan Stock Market Webpage). The establishment of the Stock Market came following new directions from the government towards the market economy and complementing the privatisation processes. In line with this direction the Libyan Stock Market was set up by a number of private and privatised financial firms (Sahara Bank, Wahda Bank, Bank of Commerce and Development, Assaray Bank, Libya Insurance Company, United Insurance and Sahara Insurance). In order to develop the Libyan Stock Market, Libya made cooperation agreements with some international Stock Markets (e.g. London Stock Exchange, Egyptian Stock Market) for training staff, importing technologies and experience and so on.

The Oxford Business Group (2008) reported that the Libyan Stock Market established a common exchange and the infrastructure for e-trading. In addition, it is working to encourage foreigners to trade on it, however, the national market still needs an international custodian for foreign funds and needs a significant amount of legislative clarity regarding the repatriation of funds.

### **2.3.6.7. The Libyan Banking Environment**

The banking sector is one of the most important sectors at both economic and at individual levels. In the country's economy, the banking sector achieves a number of important functions such as facilitating the flow of payments, allocation of credit, mobilization of saving, and control of financial discipline for borrowers. Whereas at individual level, it provides technical modern banking services to meet customers' requirements such as paying bills, drawing and transferring money. Therefore, the main aim of this section is to provide information about the Libyan banking system. Thus, this section is divided into two parts. Part one shows briefly the historical background of the Libyan banking sector. The structure of the banking sector is discussed in part two.

### **2.3.6.8. Historical Background**

Libyan banks have gone through many changes caused by the dynamic political landscape in Libya since the nineteenth century. The core features of these periods are discussed in the following sections:



**2.3.6.9. Banking sector in Libya during Ottoman period**

Abdalmalek, (2004) states that the Libyan banking industry started in the late 19<sup>th</sup> century as one of the steps to improve the Libyan economic condition. In order to diversify Libyan economic resources that were dominated by the agriculture sector, the establishment of financial institutions was required. Subsequently, the first bank was established (an agricultural Bank) in 1868 in Benghazi city; after that the second bank was established in Tripoli in 1901. Several branches were opened in different parts of Libya. Abdalmalek, (2004) also points that when banks' operations had achieved prosperity, the Ottoman government opened two branches in Libya one in Tripoli in 1906 and the other one in Benghazi in 1911, which operated until the Italian occupation in 1911. However, this Ottoman period never had included any type of local rule for banks in Libya and banks were conservatively supervised and dependent on regulations from their home countries.

**2.3.6.10. Banking sector in Libya during Italian period**

Fayad, (2003) argues that, in 1907 the Bank of Rome opened two branches in Libya, but besides its banking operations, the Bank of Rome played the role of Central Bank by issuing notes and coins to underpin its authority. Alfajori, (2004) states that between 1911 and 1943 (the Italian colonization period) several Italian banks (the Bank of Napoli, the Bank of Sicily and the Bank of Italia) were investing in Libya. These banks worked to meet the requirements of growing Italian immigration and to assist the performance of an economic plan made by the Italian Government. Otman and Karlberg, (2007) claim that there was no evidence about regulation and supervision of banking sector's operations due to the absence of records that were either hidden or destroyed by the Italian occupation and the outbreak of the Second World War. To sum up the discussion above, it could be argued that since Libya's banking sector was a branch of the Italian banking system. The regulation and supervision of Libyan banks would have been Italian orientated.

**2.3.6.11. Banking sector in Libya during British period**

Fayad, (2003) states that at the end of the Second World War, British and French military administrations dominated Libya and Italian banks left the country. In addition, in 1943 Barclays Bank opened its branches. In that period Barclays Bank had been running the banking activities as the only commercial bank in Libya. Also,



the British currency (Pound Sterling) was only used in Western region while Egyptian currency was in Eastern region.

Abdalmalek, (2004) points out that although banks were able to finance different activities in Libya over that period, this finance was limited to foreigners, that is, the banks put harsh laws and conditions for loans to finance industry and trade activities, which gave preference to foreigners who could meet these conditions, but Libyan people were unable to fulfill such conditions (Fayad, 2003). Furthermore, Alfaitori, (2004) reports that the legal structure of British banking relied mainly on the performance of Great Britain and what concerned other colonial countries especially Egypt as the nearest British colony to Libya. In this period, colonial banks' objectives were modified to suit those of their owners and shareholders in their mother country, servicing imperial trade and acting in a discriminatory fashion regarding credit facilities.

#### **2.3.6.12. Banking sector in Libya during 1951-1969 period**

Abdalmalek, (2004) states that in 1951, the Libyan banking sector witnessed the progress of banking processes, for example the currency law (4) was issued, which was the earliest monetary law in Libya's contemporary history. In addition, the number of foreign banks had been increasing, for instance, Italian banks (which were closed since 1943), the British Bank for Middle East, the Arab Bank, the Bank of Egypt, and the Tunisian-Algerian Real Estate Bank opened their branches in Libya. Following this Libya joined the Sterling group, which issued a new currency unit linked to sterling. Barclays Bank had taken on the responsibility of issuing the currency in the absence of a central bank.

According to Law (4)-1951 The Committees' Libyan currency started its operation in 1952. The main functions of the committee were the management of currency issue and investment of accumulated currency reserves. The committee's task was to remove the three currencies, which were circulating across Libya-namely sterling in the western region, the Egyptian Pound in eastern region, and the Algerian Franc in Southern Region. After one-year the Committee issued the first Libyan currency.

However, Alfaitori, (2004) concludes that when financial expansion had been taking place during period from 1951 to 1955, the Committee did not have authority and capacity to formulate and implement financial policy to face this crisis. As a result



of the need for a central bank to cope with this crisis the Libyan kingdom issued Law (30)-1955, to establish the National Bank of Libya to achieve the main tasks of a central bank. But over this period the banking system in Libya was run by eight foreign banks. The functions of these banks were prepared to provide temporary credit where the risk was limited and the profit margin relatively high (Abdalmalek, 2004). In 1956 the National Bank became a commercial bank not as a central bank. The main reason behind this move was the gradual desire to enter Libyan interests and people in the world of commercial banking. In any case, it could be argued that the foundation of National Bank in Libya was an initial step to dominate Libyan banking sector (Abdalmalek, 2004).

In 1963, three new foreign banks were established in Libya (Bank of America, Morgan Guarantee Bank and Eastern Bank), therefore, the Libyan banking system was divided into two commercial divisions: The National Libyan Bank and a number of foreign banks. The National Libyan Bank was limited to finance the domestic sector while foreign banks put strict loan requirements on borrowing for Libya's people, and all these banks were working for the benefit of parent banks in their home countries, and more often than not, preferred to transfer capital for investments abroad instead of for investment inside Libya (Abdalmalek, 2004)

#### **2.3.6.13. Banking sector in Libya from 1969 to date**

The above situation has been in place until Dec. 1970, when the new Libyan government issued Act (153) which aimed to nationalize all foreign shares in the banking sector of Libya, reorganized the banks and determined the limits of shareholding by Libyan nationals. In order to achieve the development strategy, nationalization was one of the essential steps, in addition it was critical to support the weak performance of the Libyan banking system. On the other hand, Abdalmalek, (2004) indicates that although the nationalization of the banking sector and the introduction of new banking regulations to facilitate process of nationalization were rapidly created , neither the government nor the Central Bank of Libya were ready for it. Consequently, it left loopholes, which required additional provisions from time to time through amendments of the original acts. Furthermore, Fayad, (2003) points out that the Act (153) integrated the Libyan banking sector into five main banks including three banks which were owned completely by the state (National Commercial Bank, Umma Bank, and the Gumhouria Bank), while the



other two banks (Wahda Bank and Sahara Bank) were owned by the state and the private sectors. Almajberi, (2003) argues that during the nationalization period, the Libyan banks were inadequate, where often effectiveness concentrated on ensuring that the banks complied with socialist rules that were adopted by the Libyan government during this period. In addition the departments of Banks started with limited facilities and small numbers of unqualified staff, also banks' activities were unsuccessful and were limited largely to meet the socialist goals of the economy. However, as result of the impact of new regulations since 1990s (e.g. act 9/1992; 300/1993; and 5/1997 and more other), the number of private enterprises has increased and foreign investors have invested in the Libyan banking sector (Sahara and Wahada banks have been privatised and shared with foreign investors and a number of private banks were established such as in 1996 the Development and Commerce Bank, in 2003 Elajmah Alarby Bank, Aman Commerce and Investment Bank 2004, Alwfa bank in 2004, Mediterranean Sea Bank in 2006, and Alsaraya Trading And Development Bank in 2007 (Central Bank of Libya, 2007).

#### **2.3.6.14. The Structure of Libyan Banking System**

The objective of this section is to provide details regarding the banking sector environment in Libya, thus this section is divided into two parts. Part one introduces the Central Bank of Libya, the structure of the Libyan banking sector is discussed in part two.

##### **2.3.6.14.1. The Central Bank of Libya**

The Central Bank of Libya was established according to Law (30) in 1955 under the name of the National Bank of Libya but in 1970 Law (63) was renamed as the Central Bank of Libya. The Central Bank of Libya is completely state-owned and is regarded as the financial power in Libya (Central Bank of Libya, 2007). The headquarters of the Central Bank is in Tripoli. In order to make its services more accessible for banks that are too far from the headquarters, it has three branches located in east, middle, and south Libya. The highest decision-making body of the Central Bank is the Board of Directors, which is appointed by the General People's Congress and includes a Chairman, Vice-Chairman and five other members, who are responsible for the general administration of the affairs and business of the bank. The Central Bank of Libya has eleven departments namely Issue, Reserve,



Banking Operation, Accounting Operation, Research and Statistics, Monetary and Banking Supervision, Administrative and Personal affairs, Auditing, Legal Bureau, Computer Center, and Institute of Banking and Financial Studies departments,<sup>2</sup> the main objectives of these departments are to maintain monetary stability, and to encourage the continued growth of the economy in accordance with the general economic policy of Libya (Central Bank of Libya, 2007). In other words, the functions of the Central Bank of Libya have been developed to fulfill the following functions:<sup>3</sup>

- Issuing and regulating banknotes and coins in Libya.
- Maintaining and stabilizing the Libyan currency internal and external.
- Maintaining and managing the official reserves of gold and foreign exchange.
- Regulating the quantity, quality and cost of credit to meet the needs of economic growth and monetary capacity.
- Taking appropriate measures to deal with foreign or local economic and financial problems.
- Acting as a banker to the Commercial banks.
- Acting as a banker and fiscal agent to the state and public entities.
- Advising the state on the formulation and implementation of financial and economic policy.
- Supervising foreign exchange.
- Carrying out any other functions or transactions normally performed by central banks, as well as any tasks charged to it under the Law of banking and currency and credit or any international convention to which the state is a party .
- Managing and issuing all state loans.

#### **2.3.6.14.2. Structure of Libyan banks**

Abdalmalek, (2004) claims that banks are organizations whose main function is to manage financial assets, therefore banks work as a link between the individuals or institutions that want to invest their funds and others that need these funds. Banking enterprises try to manage their financial sources to serve their targets of liquidity, and profitability without causing any damage to their customers or to the economy overall. In addition, the banking sector has an economic and social role within society and their purpose is not only to achieve the highest profits but to achieve social and economic aims in the face of pressure from various groups (Owners,

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<sup>2</sup> Compiled by the researcher according to source from the Central Bank of Libya:  
<http://www.cbl.gov.ly/en/variant/index.php?cid=79>

<sup>3</sup> Source from the Central Bank of Libya webpage: <http://www.cbl.gov.ly/en/variant/index.php?cid=94>



employees, and customers). The banking sector is required to achieve economic and social goals by offering funds to enterprises, by acting as a mediator between supply and demand for funds, creating banking and other services.

Law (4) in 1963 stated that banks whose main function is real estate, agricultural, industrial, housing and so on, finance or banks that do not accept demand deposits as one of their tasks, are not considered to be commercial banks. The law allowed the Board of the Central Bank of Libya to authorize financing banks to offer some of the banks' services. This Law also emphasized that the contribution in financing the development plans and the assistance to economic enterprises and firms are among the main objective of the commercial banks. The management of each commercial bank is run by a board of directors composed of chairman, a vice-chairman and three members who have experience in banking management and all are Libyan nationals.

According to the Central Bank of Libya (2007) It is noted that the structure of the Libyan banking sector consists of banking organization, legislation and regulations that govern these banks. The Libyan banking sector consists of the following institutions:

- Commercial banks.
- Specialized banks.

#### **A. Commercial Banks**

The commercial banks could be defined as institutions that accept deposits, offer commercial loans, and provide related services. Commercial banks also allow for several deposit accounts, for example, checking savings, and time deposits. These organizations work to generate a income and are owned by a group of individuals. While commercial banks provide services to individuals, it is principally concerned with receiving deposits and lending to business (Central Bank of Libya,(2007)). From this definition and the regulations of the Central Bank of Libya, Libyan commercial banks can be divided into four main banks (public, private, privatized, foreign banks).



### **A.1 Public Commercial Banks**

The public commercial banks are fully (or at least more than 51%) owned by the state that nationalized them at the beginning of the 1970's. They have a substantial number of branches that are located across the country. According to the Central Bank of Libya (2007) the public commercial banks can be divided as follows:

#### **a) National Commercial bank**

A national Commercial Bank is established according to Act No. 153 of 1970 which nationalized the foreign banks and the Law identified the bank as a joint-stock company, established Libyan nationalization of foreign shares in the banks and re-organization and identification of the contributions of the Libyans (Central Bank of Libya, 2007).

#### **b) Gumhouria Bank**

The Libyan government issued Law (53) in December 1970 to nationalize Barclays Bank to be fully owned by the Libyan state in the name of Gumhouria Bank. The Gumhouria Bank is one of the largest Libyan commercial banks operating in Libya. It is developed at the Arab and World level. Gumhouria Bank has experience and banking services as large banks, and in order to contribute in economic activity, it provides appropriate services for individuals and organisations at home and abroad (Central Bank of Libya, 2007).

#### **c) AL Umma Bank**

AL Umma Bank was in name of "Banco di Roma", which was established in 1917 based on an agreement between the government of Italy and the Ottoman Sultan. In November 1969 the law issued by the Libyan government nationalised all the shares of foreign banks operating in the country, in line with this direction. The Law (153) changed the names of Banco di Roma to the AL-Umma Bank to become fully owned by Libya (Central Bank of Libya, 2007).

In order to reform and develop the Libyan banking sector, AL-Umma Bank and Gumhouria Bank decided to merge under the name of Gumhouria Banks, and the Central Bank of Libya approved this action by issued Act (8) in 2008 as a result for in Article (62) of the Banking law in 2005. However, until now (March 2009) each bank is operating separately (Central Bank of Libya, 2007).



## **A.2 Privatized Commercial Banks**

The privatized commercial banks are the banks that were public banks but with a new vision by the Libyan government towards the market economy, these banks have been privatized. In this category there exist two banks:

### **a) Wahda Bank**

Wahda Bank is Libyan joint-stock company established according to Law (153) in 1970. Its capital consists of the contribution of North Africa Bank, Commercial Bank, Al-Nahda Al-Arabia Bank, African Banking Company and Al-Qaffilah Al-Ahli Bank and it took all those banks with all their assets and obligations. This bank is one of the successful banks in Libya by providing banking services of all kinds through its branches across Libya.

Wahda Bank was owned by the Central Bank of Libya (more than 70%), however, in 2007, the Central Bank of Libya reported that Jordan Arab Bank is chosen to be the foreign partner of Wahda Bank. In addition, the Jordan Arab Bank received both management control over Wahda Bank and the right to increase its shareholding to 51% 2010 (Middle East Business Intelligence, 2009).

### **b) Sahara Bank**

Sahara Bank has been chartered and began its activity since 1964, with mixed capital, in which the Libyan citizens have taken part with some foreign banks. And in accordance with the banks nationalization involving a resolution of Foreign share nationalization, in 1970, Shares were taken by the Libya Central Bank. Then, the bank since its foundation began to provide its bank services to its customers, where it has funded several institutions and public and private banks either in productive and service sectors, which enabled these parties to accomplish its objectives of economic development in the country. In line with new plans of the Libyan government- encouraging the private sector, and opening new areas for investment in all economic activities like banking area- the Libya Central Bank has decided to sell its share in Sahara Bank to France's bank- BNP Paribas (BNPP.PA)- the latter bought a 19 percent stake in Libya's Sahara Bank. In the near future, BNP will increase its shareholding to 51% (BNP Paribas 2009).



### **A.3 Private Commercial Banks**

Private Banks are joint venture companies that are owned by individuals or institutions since establishing their activities.

#### **a) Commerce and Development Bank**

Commerce and Development Bank is a Joint Stock Libyan Company. In accordance with decree (1) 1993, the Bank was officially opened in 1996 to work in different banking services and provide modern approach (Central Bank of Libya,(2007).

#### **b) Aman Bank for Commerce and Investment**

Aman Bank for Commerce and Investment is the first private Libyan bank which was established in 2003 after the law (1) 1993. It has the only Internet banking facility in the country and the only one which offers effective accounts in foreign currencies. It has a Master Card contract and issues their own credit cards (Central Bank of Libya, 2007).

#### **c) Al-Wafa Bank**

Al-Wafa Bank was begun in 1997 as private bank concerned with banking services in Libya with three branches in Tripoli (Central Bank of Libya, 2009).

#### **d) Alejmaa Alarabi Bank**

Alejmaa Alarabi Bank is a joint venture Libyan company, it was started based on a decision by the Ministry of Finance in (50) 2003 in the city of Benghazi and the bank expanded by opening other branches such as Tripoli and Misurata in order to be able to provide services to the largest segment of customers (Central Bank of Libya, 2009).

#### **e) Mediterranean Bank**

The Mediterranean bank was established in 1997 under the name of Benghazi Ahli Bank, a private local banking institution operating under the umbrella of the National Banking Corporation under the supervision of the Central Bank of Libya.

The decision has been made to restructure the bank not only to cope with the new banking Law (1) 2005 , but also to adequately respond to the new structural and organizational changes and development resulting from recent economic reforms taking place in Libya (Central Bank of Libya, 2009).



**f) Alsaraya Trading And Development Bank**

Alsaraya Trading And Development Bank was started as a small local private bank in Tripoli in 1997. The bank has expanded its activities with several branches (Central Bank of Libya, 2007).

**g) United Bank for Trade and Investment**

The United Bank for Trade and Investment was established according to decision of the Central Bank of Libya (58) in 2007, which is the result of the combination of three local banks ( Al Ahli Bank Alajafarh Sahel, Bank of Al Khumiss, Al Ahli Bank Ajeelat). Since the establishment of the banks, it paid more attention to play an important role in financing different projects, to provide various kinds of banking services through its branch network which currently includes 10 branches. It seeks to use modern technology to enable its customers to use telephone and Internet services (United Bank for Trade and Investment, 2009).

**h) African Bank of Trade and Investment**

African Bank of Trade and Investment was established in 2007 as a private bank owned by a group of individual businessmen. Then according to its successful efforts, the bank has expanded its activities with several branches (The Central Bank of Libya, 2009).

**i) National Banking Corporation**

The national banking corporation was established in 1996 as a private bank specializing in various banking services via more than 27 small local banks across the country (The Central Bank of Libya, 2007).

**A.4 Foreign Commercial Banks**

Foreign banks are not Libyan owned (even if shares or parent), in other words, they are banks working in the Libyan market but they are owned by neither Libyan individuals nor institutions. In this case there several foreign banks with representative offices which are waiting for permission from the Central Bank of Libya to start their businesses as bank branches, however there are only two bank branches:



**a) British Arab Commercial Bank (BACB)**

The BACB was established in London in June 1972, BACB is a wholesale bank and a leading provider of trade and project finance for Arab markets. Building on a successful track record in the Arab Mediterranean region, market coverage has expanded steadily in recent years and the bank is also able to handle business throughout the Middle East. It started in the Libyan market in 2007 (British Arab Commercial bank, 2009).

**b) AlWaha bank**

AlWaha bank was established in 2007 as a private bank, however, the whole capital investment of AlWaha bank has been invested by Sahel-Saharan Investment and Trade Bank which is a foreign bank to supply all banking services in Libyan market (the Central Bank of Libya, 2007).

**B. Specialized banks**

Specialized banks are catering for special needs. These banks provide financial support to specific activities (e.g. industries, foreign trade, and investment ... etc). These banks are Agricultural Banks, Saving and Real-Estate Investment Banks, industrial banks, development banks, and export-import banks. The following will give a brief overview for Libyan specialized banks.

**B.1 Saving and Real-Estate Investment Bank**

The Bank created under the provisions of Law (2) in 1981 as a Libyan joint venture company in the name of Savings and Real-Estate Investment Bank, owned fully by the Libyan government (Ministry of Finance) and under Central Bank supervision. The main target of the bank is to support construction and encourage savings and provide credit facilities in order to provide suitable housing in the context of the development plan (Otman and Karlberg, 2007).

**B.2 Agricultural Bank**

The Agricultural Bank was established in 1955 and started operations in 1957. The bank plays a key role in the process of agricultural and economic development as the only financial specialized institution in the local agricultural sector to provide agricultural credit (Otman and Karlberg, 2007).



### **B.3 Development Bank**

The establishment of the Development Bank was in accordance with Act (8) 1981, the main aim of the bank is to finance investment projects of economic feasibility in the areas of industry, tourism and service projects. In order to reach the bank's credit services to all Libyan areas and to create awareness among the Libyan citizens of the importance of the productive and service projects for the development of economy, twenty-seven branches have been opened in different regions of Libya (Otman and Karlberg, 2007)

### **B.4 Alrefi Bank**

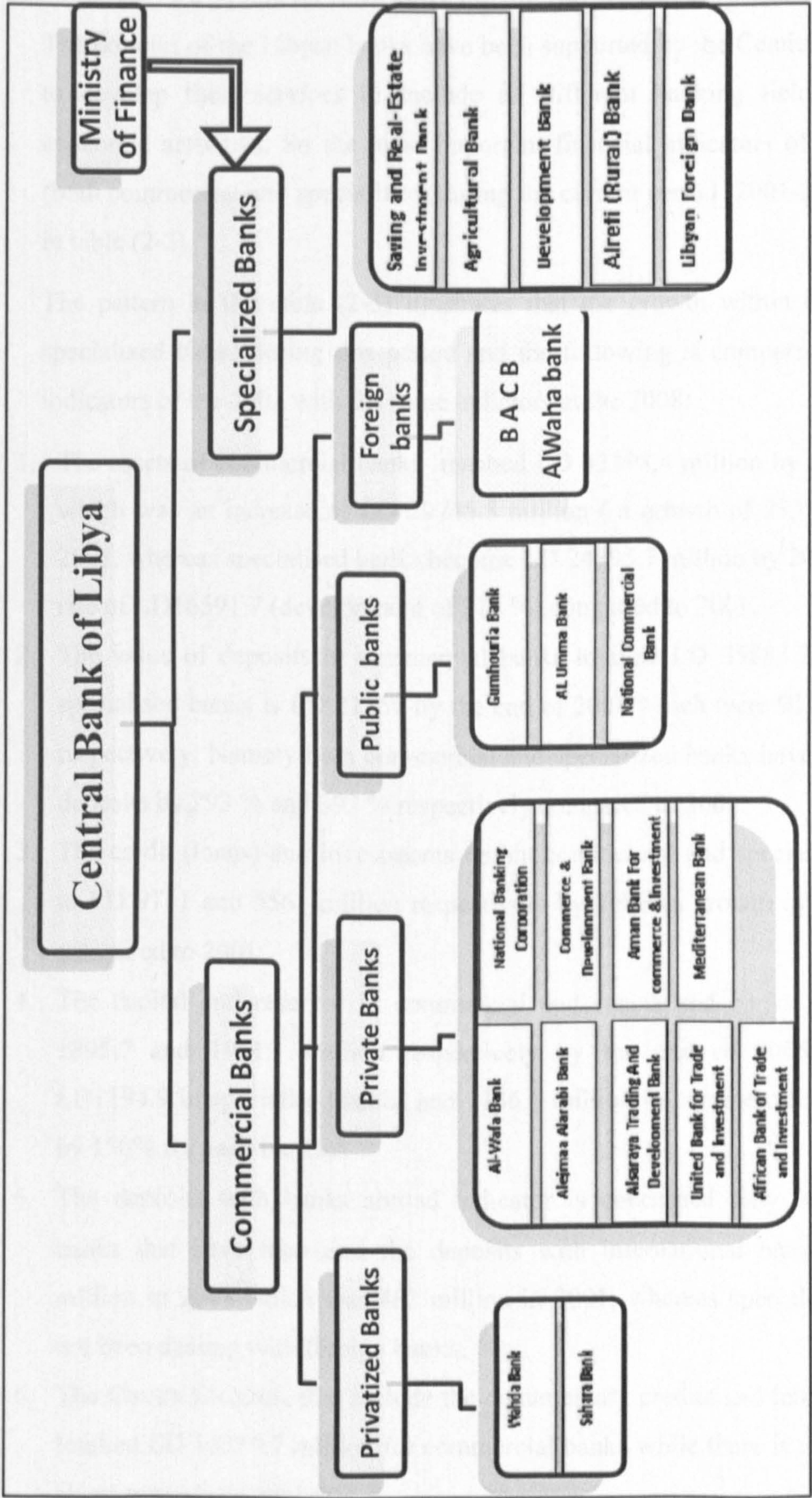
The Alrefi bank was established in 2003 according to the Libyan social direction which aimed to assist people with limited income by providing loans to build their own productive projects instead of dependence on government benefit. In addition, it aims to contribute to growth in the national economy to increase national production and development of small productive projects, professionalism and service as well (Otman and Karlberg, 2007).

### **B.5 Libyan Foreign Bank**

The establishment of the Libyan Foreign Bank according to Law (66) 1972 as Libyan joint venture company and the law set up capital of bank by Libyan dinars and it is fully owned by the Central Bank of Libya, and authorized the Bank to work in various banking business abroad. The General People's Committee issued the Act (887) in 1988 to increase the bank's capital to three hundred million Libyan dinars, and in 2006 The General People's Committee has been paid, the rest of the planned increase to billion Libyan dinars (Otman and Karlberg, 2007). Based on economic database in the Central Bank of Libya's, and the review above regarding Libyan banking system, the figure (2-1) shows the current structure of the Libyan banking system.



The figure 2-1 the Libyan banking system



Source: prepared by the researcher based on “Banks Dictionary” that is available in the Central bank of Libya webpage at : <http://www.cbl.gov.ly/en/home/index.php?cid=102>



### **2.4 Financial Indicators for the Libyan Banking Sector**

The policies of the Libyan banks have been supported by the Central Bank of Libya to develop their services to include all different banking fields and increase economic activities. So the most important financial indicators of banking sector (both commercial and specialized) during the current period (2001-2008) are shown in table (2-3).

The pattern in the table (2-3) illustrates that the growth within commercial and specialized banks during this period and the following is comparison between the indicators of the 2001 with the same indicators at the 2008:

1. The assets of commercial banks reached LD 42398.4 million by the end of 2008 which was an increase of LD 29745.5 million ( a growth of 235%) compared to 2001, whereas specialised banks become LD 24395.7 million by 2008 which was a rise of LD16591.7 (development of 213 %) compared to 2001.
2. The value of deposits in commercial banks totalled LD 35883.7 million and in specialised banks is LD 21150 by the end of 2008 which were 9127.6 and 4291.5 respectively. Namely both commercial and specialized banks have improved their deposits by 293 % and 393 % respectively compared to 2001.
3. The credit (loans) and investments within commercial and specialised banks rose to LD 9711 and 5561 million respectively by 2008 (a growth of 50% and 84%) compared to 2001.
4. The capital and reserves in commercial and specialised banks went up to LD 1895.7 and 1991.1 million respectively by the end of 2008 increasing by LD1194.9 in specialised banks and 1136.1 million in commercial banks a growth by 150% for each banks).
5. The deposits with banks abroad indicator is concerned only with commercial banks that have increased the deposits with international banks to LD 2.854 million in 2008 which was 482 million in 2001, whereas specialised banks have not been dealing with foreign banks.
6. The Contra accounts that include the documentary credits and letters of guarantee totalled LD 16219.7 million for commercial banks while there is no data available about specialised banks.



Table 2-3: Financial indicators for the Libyan banks ( In Libyan Dinars/ Millions)

Year Indicators	2001		2002		2003		2004		2005		2006		2007		2008	
	*Com.	**Spe.	Com.	Spe.	Com.	Spe.	Com.	Spe.	Com.	Spe.	Com.	Spe.	Com.	Spe.	Com.	Spe.
Assets	12646.9	7804	13534.5	12439.4	14567.3	14554.2	16551.5	17515.6	19823.4	21464.7	23728.5	29613.4	31561.4	31955.1	42398.4	24395.7
Deposits	9127.6	4291.5	9493.7	7756.6	10206	8757.9	12141.1	10920.8	15210.8	13135.9	18696.7	21632.5	25863.2	24420.2	35883.7	21150
Credit & Investment	6454.4	3021.7	6866.3	4370.7	7298.4	5477.4	7004.6	5692.8	6669.7	7486	7442.5	11028.5	8396.7	13514.8	9711	5561
Capital & Reserves	759.6	796.2	807.3	808.6	869.2	2512	888.3	3571.6	1135.5	3747.6	1267.9	4178.8	1696	4231.1	1895.7	1991.1
Deposits With Banks Abroad	0.482	0	0.742	0	0.766	0	1.283	0	2.02	0	2.244	0	2.42	0	2.854	0
Contra Accounts	2067.5	168.2	2159.7	193.4	1841.6	544.2	2011.9	789.1	3235.2	812	4638.8	1029.3	8963.7	1315.3	16219.7	0
<b>Total</b>	<b>31056.5</b>	<b>16081.6</b>	<b>32862.2</b>	<b>25568.7</b>	<b>34783.3</b>	<b>31845.7</b>	<b>38598.7</b>	<b>38489.9</b>	<b>46076.6</b>	<b>46646.2</b>	<b>55776.6</b>	<b>67482.5</b>	<b>76483.4</b>	<b>75436.5</b>	<b>106111.4</b>	<b>53097.8</b>

\*Com. = Commercial banks, \*\*Spe.= specialised banks

Source: Economic Bulletin for the third quarter of the year 2008 at the central bank of Libya report at: <http://www.cbl.gov.ly/en/pdf/09ahW392wXW5elpNqNM.pdf>



From the table above, it can be noted that the overall indicator for development of Libyan banks. the calculation of this indicator is that it equals the total of all indictors of each year to commercial banks and specialised banks. The calculation of this indicator is shown in the table 2-4 and figure 2-2.

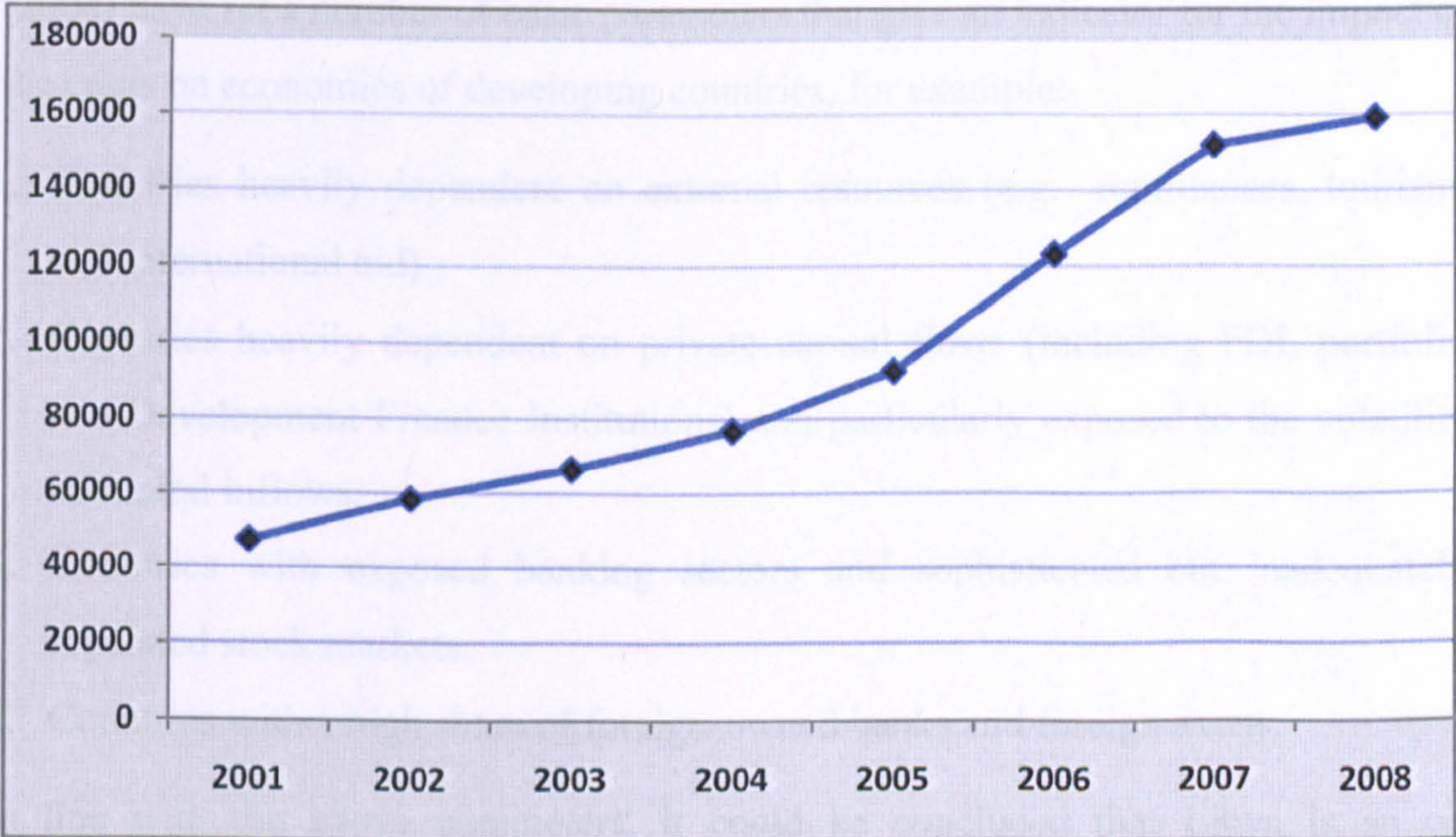
Table 2-4: Overall financial indicators for the Libyan banks (In Libyan Dinars/ Millions)

Indicators	2001	2002	2003	2004	2005	2006	2007	2008
Commercial banks indicators	31056.5	32862.2	34783.3	38598.7	46076.6	55776.6	76483.4	106111.0
Specialized banks indicators	16081.6	25568.7	31845.7	38489.9	46646.2	67482.5	75436.5	53097.8
Overall indicators	47138.1	58430.9	66629.0	77088.6	92722.8	123259.1	151919.9	159208.8

Indicators include total of assets which are Assets+ Deposits + Credit & Investment + Capital & Reserves + Deposits With Banks Abroad + Contra Accounts

Source: prepared by researcher based on the table (2-3)

The figure (2-2) the financial indicator of The Libyan banks during 2001-2008



From the graph above regarding the overall indicator, it can be noted that the overall indicator has slightly grown during the period from 2001 to 2005, after that the growth has sharply increased. Accordingly, it might be the result that the Libyan banks have achieved some progress during the current period 2001-2008.



### **2.5 The Current Financial Crisis and Libyan Banking Sector**

According to Toporowski (2009) the current financial crisis is the credit crunch in banking sector across North American and West European markets. This credit crunch has taken place because banks or financial institutions have lent funds (deposits/savings) for repayment in long-term whereas those funds are borrowed for short-term which cannot be rolled over. The reason for this move is that banks might want to gain high profit which comes from the interest rate in the long-term. In addition, the credit crunch is a liquidity crisis, which needs to be distinguished from a solvency problem, where a bank's assets are less than its liabilities, so that if liquidated the bank could not pay all of its debts. The difficulty for bank regulators is that solvency problems in practice are indistinguishable from liquidity problems. Insolvent banks usually eventually experience illiquidity while even a solvent bank, if liquidated, may not be able to repay all of its obligations, because the price of assets are usually reduced by their forced sale (Toporowski, 2009).

With reference to the impact of the current financial crisis on the economies of developing countries, the World Bank (2009) and Overseas Development Institute (2008) have set a number of basic parameters that give an indicator for the impact of the crisis on economies of developing countries, for example:

1. Countries heavily dependent on external resources (e.g. remittances, tourism, and international aid)
2. Countries heavily dependent on private capital flows (including FDI, portfolio and Development Finance Institutions) and particularly exposed to the volatility of capital inflows.
3. Countries with exposed banking sectors and sophisticated but inadequately regulated stock markets.
4. Countries with a high share of foreign-owned banks and foreign assets.

In line with the above parameters, it could be concluded that Libya is an oil producing country which is not dependent on external resources like tourism, remittances, and international aid. In addition, although Libya has recently taken several actions for encouraging FDI to invest in different sectors, it is still at a low level. Furthermore, the banking sector and Stock Market in Libya are encouraged to improve their services and are taking some action towards market business and international interactions, but they are still at the initial stage of development, and the



amount of deposits with foreign banks is only about 3% of assets (the Central Bank of Libya, 2009). Moreover, the World Bank (2009) classifies Libya as one of countries that are low risk in the face of the current crisis and unlikely to be affected by the crisis (decelerating growth). Likewise, the economic interrelation with countries at the centre of the crisis, for example the US is very limited.

## **2.6 Summary**

The aim of this chapter was to provide an essential part of the background to the study by presenting knowledge of the nature and characteristics of the banking system and Libyan economic environment, where banks have to operate. The first section of this chapter gave a brief review of the Libyan context in terms of location, population and history, also, it provided a review of the Libyan economy and the development plans. The second section of this chapter focused on studying the development of the banking system, including the background of development of banking sector in different periods which can be divided into three main periods: Firstly, the period from Ottoman to 1951, this time characterized by domination of foreign (colonized) banks for Libyan banking system. The second period is beginning from 1951 until 1969, when the banking system has been started and regulated the main feature of this period is that establishment of Central Bank of Libya. The last period is from 1969 to date, this period witnessed two directions, the former when the banking system was dominated by public ownership it reflected weak effectiveness and efficiency of the banking sector. Whereas the latter since 1990's to date, in this time, the banking system has improved to make relatively good progress and it has adopted new policies to engage in the international market. Also, it has introducing the Libyan banking sector's structure and functions. The next section provided the financial indicators for the development of performance in Libyan banks during current period (2001 to 2008). In the last section, the chapter presents the potential effects of the current crisis of Libyan banking systems.

From the above discussion, it can be concluded that the Libyan economy is a small in global terms and still in the developing stage with heavy reliance on oil as its main source of finance. Also, the Libyan banks play a major role in the Libyan financial market, which made significant development of its structure, ownership, regulations, and market. In addition, the overall financial indicator revealed that Libyan banking achieves the development of the level of its financial ability to



## **CHAPTER TWO----- *The Context Of The Libyan Banking Sector***

engage in the international market likewise local market which was becoming a competitive environment with mixed number of public, private and foreign banks. In order to cover issues related to the banking sector, the possible effect of the current financial crisis has been discussed. It was found that the Libyan banking sector is not immune from the current global crisis but for the moment it seems safe from the worldwide crisis in the short term.

The following chapter will discuss literature in the field of performance measurements, highlighting the theme of financial and non financial performance measurements, and the main findings of research in the field.



## **CHAPTER THREE**

### **PERFORMANCE MEASUREMENT SYSTEMS**



### **3.1 Introduction**

Management accounting information provides internal and external users with financial and non-financial information, which is used for planning, controlling and making decisions for business activities. In addition, the ability of managers is crucially reliant on the availability of such information in order to operate successfully.

Medori and Steeple (2000) argue that performance measurement systems are one of the central fields of management accounting which provides a basic role in controlling and evaluating the achievement of organisational objectives. Thus, a review of the literature shows an increasing emphasis on the design and development of performance measurement systems.

The literature of performance measurement (e.g. Otley, 1999; and Hoque and James, 2000) illustrate that the use of financial performance measures to enhance organisational strategy and to evaluate managerial performance, is still emphasised. However, others for example Kim et al., (1997); Chenhall, (1997); Kaplan, (1998); and Hoque et al, (2001) claim that the emergence of today's extremely competitive business environment, and the developments of new technologies such as the adoption of total quality management approach, have produced a need for developing performance measures in order to sustain a continuous improvement.

Furthermore, the rising dissatisfaction and discontent voiced by a number of researchers (e.g. Eccles, 1991; Neely, 1999) regarding the excessive reliance on financial measures have resulted in more attention being given to the use of non-financial measures such as quality and customer satisfaction. In addition, Ittner and Larcker, (1998) stress that, for the aforementioned, new financial performance measures such as economic value added and cash flow return on investment have also involved a substantial amount of interest in management accounting literature.

This chapter critically reviews the performance measurement literature which focuses on the use of financial and non-financial performance measures. Several key review questions have been used when examining the literature. These are: 1) What definitions of management control and performance measurements are in previous research studies? 2) What definitions of financial and non-financial performance measures are used in previous literature? 3) What is importance of the use of



financial and non-financial information for measuring and evaluating managers' performance? 4) What is the performance impact of using financial and non-financial information in performance measurement practices? This chapter is structured as follows: Section 3.2 analyses the definitions and theories of management control. Section 3.3 and 3.4 describe and analyse the developments of performance measurements. Financial performance measurements are presented in section 3.5. This is followed by section 3.6 which draws attention to the need for non-financial performance measurements. Finally, the conclusion provides concluding remarks on the whole chapter.

### **3.2 Theory of Management Control:**

Control is a number of policies and procedures that are applied for directing, regulating, and coordinating business, administration, and other activities more or less to attain the target of the company (Simons, 1990). In addition, Otley and Berry, (1980) confirm that, control highlights the idea of directing and monitoring activities after appropriate action taken in order to achieve the firm's objectives. Furthermore, Arno et al, (1999) argue that control is one of most important management activities, because it follows plans which have been formed to accomplish the aims in the organisation. They add that organisations should assure that both managers and employees are seeking to achieve and to do so, organisations develop regulations which influence the actions of managers and employees to aim in objectives achievement. However the main aspect of the control system is how organisations could make sure that managers and employees operate to achieve the organisational goals (Otley, 2003). He concluded that there are two essential aspects of this problem. Firstly, how managers and employees could be encouraged to reach what is optimum for the organisation. Secondly, how could systems and practices be designed that would always indicate appropriate action and report when it has been attained.

Control is a tool that managers utilize to ensure that the behaviours and decisions of employees within the organisation are consistent with the organisation's objectives and strategies (Merchant, 1998). Otley et al, (1995) state that a control system is an essential process in four main aspects: set goals, measure performance, compare performance with goals, and provide feedback to correct a variance between goals and performance. Merchant, (1998) classified controls into three categories. Firstly,



behavioural controls which are applied to situations where the actions and behaviour of individuals as they go about their work are the focus of control. Secondly, personnel and cultural controls that is according to support of the commitment in the direction of achieving organisational objectives, so that employees can become integrated with the framework of the organisational goals. Finally, results controls which include collecting and reporting information about the products of the business efforts. Furthermore, Merchant, (1998) also has identified the control systems by dividing them into two main typologies strategic control and management control. The former deals with the validity of the strategies of the firm in a changing environment, while the latter copes with issues about influencing the behaviour of employees. Moreover, the management control is aimed to supply useful information regarding planning, control, evaluation and decision making, therefore it includes collection of control devices which focus on internal activities (Kaplan, 1983). According to Drury (2004) management control is a form of result controls aspect which comprises monetary terms (revenues, profit and ratios) and non monetary terms as well (the number of customer deliveries) In addition, Drury (2004) also points out that results controls contain the following stages:

1. Classifying the dimensions of performance should be agreeable with organisation's targets.
2. Setting performance goals to specify every aspect of performance dimensions.
3. Assessing financial and non-financial performance.
4. Supplying compensations or punishment.

Similarly, Chenhall, (2003) concludes that the management control systems focus on the provision of a broader scope of financial and non financial information to assist managerial decision making. However, the development of management control has evolved around activity-based costing systems, operational control systems and performance measurement systems (Kaplan, 1984). Thus, Olson and Slater, (2002) performance measurement is fundamental to the management control process for any organisation.

From the discussion above, it could be argued that, in line with the importance of management control aspects, and the lack of studies in developing countries like Libya, this study will focus mainly on performance measurement systems aspect



namely the use of a set of financial and non financial measures for performance measurement and evaluation systems to bridge the gap in the literature.

### **3.3 Performance measurement systems: concept and design**

In order to achieve the organisations' objectives, they mainly rely on performance measures to assess, to control, to make decisions, and to compare the performance of divisions, branches, and employees. Although performance measurement system is a fundamental topic which is frequently studied, it is still an ambiguous term, and there is no agreed definition (Otley, 1999). Thus it is essential to clarify its meaning more understandable and make it by reviewing the literature on performance measurement definitions. For example, the performance measurement system has been described as a process of evaluating the ability to achieve targets, including data on the efficiency with which resources are transformed into goods and services, the quality of production and outcomes, and the effectiveness of organizational operations in terms of their specific contributions to organizational objectives (Amaratunga and Baidry 2003). In addition, Marshall et al (1999) identify the performance measurement system as a progress of measures and collection of information to explain, record, and evaluate performance. Furthermore, Neely et al (1995) describe the system as the process of quantifying action, where measurement is the process of quantification and action is associated with performance. Moreover, they also recommend that performance should be defined as the efficiency and effectiveness of action, which leads to the following definitions:

- Performance measurement is defined as the process of quantifying the efficiency and effectiveness of action.
- Performance measures are defined as a metric used to quantify the efficiency and/or effectiveness of an action.
- Performance Measurement System is defined as the set of metrics used to quantify the efficiency and effectiveness of action.

Similarly, Lohman et al (2004) provide definitions for three phrases connected to performance:

- Performance indicator or performance metric is a variable that expresses quantitatively the effectiveness or efficiency or both, of a part of or a whole process, or system, against a given norm or target.



- Performance measurement is the activity of measuring performance using performance indicators.
- Performance measurement system is a system (software, databases, and procedures) to implement performance measures in a consistent and complete way.

Also, Kaplan (1984) stresses that the performance measurement system is an information system that aims to supply financial details to assist managers make decisions. Browne and Devlin (2002) claim that the performance measurement system is a complete group of performance measures derived in a consistent manner according to a set of rules or guidelines. Otley (2001) declares that the term of the performance measurement system is used by different managerial levels to denote and to discuss every sort of issue and every aspect of business administration. In addition, it could be stated that performance measurement system is both very old and modern topic, all corporations measure the performance, but the difference in our day is in what they are measuring (Geanuracos & Meiklejohn 1993). Furthermore, the performance measurement system design as mentioned by Neely et al (1995) could be investigated at three levels, which are:

- Individual performance measures levels: It includes the indicators to measure the efficiency and/or effectiveness of actions. These indicators can be categorised under a number of headings such as quality, time, delivery, financial and flexibility.
- Performance measurement system level: It consists of a number of performance measures used to quantify both efficiency and effectiveness of actions as an entity (i.e. the performance measurement system).
- Performance measurement system and environment level: It shows the interrelation between the performance measurement system with the internal and external environment.

In this study, the term performance measurement will be used in the context of measuring the performance of a business, and it will not include individual performances, because it is beyond the scope of this study.

In term of the design of performance measurement system, Ittner and Larcker, (1998) argue that organisations have been faced vital challenge to design their



performance measurement system. Therefore, the number of criteria for designing performance measurement systems has been developed by some researchers. For example, Neely et al, (1995) identified a set of criteria for performance measurement system design which depend on several guidelines as follows:

- Performance criteria should be selected from the organisation's objectives.
- The target and calculation process of each performance criterion must be clear.
- The ability of performance criteria to be comparable with other organisations' criteria.
- Objective performance criteria are preferable to subjective ones.
- Data collection and methods of calculating the performance must be clearly defined.
- Performance criteria should be under the control of the assessed organisational unit.
- Ratio-based performance criteria are preferred to absolute number.
- Determining performance criteria should be selected through people who are involved in the organisation.

However, the selection of performance measures has also been examined by several researchers. For instance Kaplan and Norton, (1992) argue that most organisations face difficulties in choosing their performance measures. Although there is a broad agreement that some kind of uniformly accepted performance measures are necessary, there appears to be no agreement on how such a system can work under different contexts and industries. It is evident in the management accounting literature that organisations utilise performance measures for a range of reasons:

- To indicate where more or less effort is required (Euske et al 1993),
- To examine activities in units and/or divisions and through time for identifying problems and taking corrective actions (Emmanuel et al, 1990 and Harper, 1984).
- To achieve planning, monitoring and control functions (Ghobadian and Ashworth 1993). Performance measures supply a reasonable basis from which to build plans (Harper 1984).



- To assist continuous development in key areas and to support behaviour in ways that would help maintain competitive advantage (Chenhall and Langfield-Smith 1998).
- To support improvements in resource allocation and better decision making (Ghobadian and Ashworth 1993).
- To highlight responsibilities and to determine the accountability of the employees and managers; and in particular, to notice inefficiencies with the help of management accounting information (Fitzgerald 1988, Ghobadian and Ashworth 1993)
- To offer regular data for staff appraisal, motivation and rewarding (Emmanuel and Otley 1999, Ghobadian and Ashworth 1993). Performance measurement is perceived as one means of motivating people towards achieving organisational goals.

Although there are several reasons for the utilisation of performance measures, overall it is considered to be an integral part of the management processes (Chenhall 1997, Hilton 1999), and to identify areas of poor performance or opportunities so that better plans can be developed.

In the same vein, Maskell (1989) suggests that organisations should take into account the following cluster of principles for designing a performance measurement system. Firstly, the measures should be directly related to the firm's strategy. Secondly, non-financial measures should be implemented. Thirdly, measures should be changed as circumstances change. Finally, the measures should be usable and provide fast feedback. In addition, Medori and Steeple (2000) provide a comprehensive review regarding various paradigms for designing performance measurement systems. In his review, he suggests four paradigms count on the most universal attributes shared in designing performance measurement systems. These are: (1) the system should relate to the organisation's strategy, (2) the system should be simple to understand, (3) the system should be non-financial but without excluding the financial measures, (4) the system should relate to customer requirements.

Subsequently, Atkinson, et al, (1997) indicate that the performance measurement system should:



- Help the company evaluate whether it is receiving the expected contributions from employees and suppliers, the element of its internal stakeholder group, and the expected returns from customer groups.
- Help the company evaluate whether it is giving each stakeholder group what it needs to continue to contribute so the company can meet its primary objectives.
- Help the company evaluate its planning and the contracts, both implicit and explicit, that it has negotiated with their stakeholders by helping it evaluate the effect of secondary objectives on its primary objectives.
- Guide the design and implementation of processes that contribute to the company's secondary objectives.

The conclusion that would be drawn from the discussion above is that the criteria for designing performance measurements provide general guidelines for setting up a performance measurement system. In addition, these criteria are also different from one organisation to another, some of them are easy to implement and others are less clear. However, there is little consensus regarding definitions, methods of measurement, or even what should be measured. Also there is little explanation on how these criteria can be applied. In this context, for example, Neely et al (1996) conducted a study to investigate the use of structured processes for the design of performance measurement systems in the UK. The findings were based on a sample of over 850 companies showed that 32% of the sample use structured processes for performance measurement system design, while 68% of the sample used informal processes.

Consequently, it might be said that there is no ideal criterion of performance measurement system design, the choice is often influenced by developments in the environmental. These developments include linking performance measures to strategy in order to cope with the changes in both internal and external environments.

### **3.4 Chronological stages for developing Performance Measurements**

This section gives a brief understanding of improvement of performance measurement since 1900's until now.

During the industrial revolution, Fleischman and Parker (1990) point out that profit-motivated behavior of capitalists was an important motivating force in management



accounting practice development. For instance, General Motors Company as multidivisional firm established in the 1920s and its performance evaluation system was guided, mainly, by financial measures, as a result of this, the majority of divisional managers worked under pressure to reach their financial targets, which in turn improved the operational performance (Johnson, 1983). In addition, the accounting department in General Motors Company has participated in developing many of the management accounting techniques which are still operated in the current modern organizations, such as budgeting, and return on investment amongst others that it used to improve its financial position (Kaplan, 1984). In addition, he also indicates that General Motors' reward system was very useful regarding compensating different organizational levels that participated in outstanding performance of the company. This reward system was assumed in monitor several specific financial performance objectives that, if achieved, would assist to specifying and then rewarding the performance of each departments/employees in the organisation.

In the 1960's, the management accounting literature has focused on several quantitative models which can be used in empirical studies such as regression analysis, liner and non liner programming, hypotheses testing and decision making theory, These models were employed in all aspects of management accounting to solve some problems like difficulties in planning, evaluation of performance and controlling (Kaplan, 1984)

Cooper and Kaplan, (1991); Kida and Smith, (1995); and Neely, (1999) argue that since 1970's until beginning of the 1990's managers were being provided with information related to financial values to be used as guidance for evaluation of performance and decision making process. However, from the mid-1980's and onwards, the use of financial measurement techniques have had several criticisms for example lacking strategic focus, and short-term driving inappropriate behavior (e.g. Kaplan and Norton, 1992; 1996). Furthermore, Otley, (1994); Fisher, (1995), and Neely, (1999) assert that the change in business environment like high environmental uncertainty, increase in competition, changing organizational roles and changing external demands were given other incentives for organizations to develop their traditional performance measurement namely financial techniques. Over this period, as a result of these multiple changes, non financial measures have



been developed to create forward looking performance measurement systems that address the needs of multiple stakeholders (Wilcox and Bourne, 2003). In addition, Eccles (1991) predicts that, in the near future, in order to take all these changes into consideration organisations should redesign their performance measurement systems. Otley (1994) suggests that the performance measurement system is an essential system for all firms as it helps to ensure that overall operating coherence is maintained and that the organization retains capability to survive in its uncertain environment. Moreover, Kaplan and Norton (1992) state that as a consequence of these changes, it could be misleading to focus on financial performance measurements such as return on investment and budgeting, consequently a combination of both financial and non financial measurements is required such as the balanced scorecard.

Recently, several academics indicated some issues regarding the development of performance measurements. For example, Kennerley and Neely (2003) state that during the last two decades, there were remarkable changes in performance measurements, and these changes connected with the development of new technologies and the increasing complexity of organisations and markets. They divided factors that affect the use of performance measurements into two groups. The first group includes factors that cause change while the second group comprises factors that are barriers to change. Therefore, numerous organisations have redesigned their performance measurement systems to ensure that they reflect their environment and strategies. Furthermore, Euske et al (1993) declare that there is an agreement that performance measurement systems is a contextual defined phenomenon, namely, measures may have different importance and meaning in different organisations.

It appears from the above discussion is that the development of performance measurements into two main periods: Firstly, the period which began in the late 1920s' and went through to the 1980s, in this time, the main focus was on financial performance measures such as profits, and return on investment. Secondly, the period which started in the late 1980s, which is characterised by changes in the business environment. During this period, organisations started to face changes in their environment such as increase of competition through quality and low cost, and therefore, organisations began to change their strategic priorities to cope with the



high level of competition. In addition, they also began to implement new techniques in technology. In this phase, organisations started to use non-financial performance measures such as quality, and customer satisfaction. Also, Kennerley and Neely (2003) state the factors that affect (cause and /or barriers to change) of performance measurement, have received little attention in the performance measurement literature.

### **3.5 Financial performance measurements**

#### **3.5.1 The definition of financial performance measures**

The American Accounting Association (AAA) (1975) defines financial performance measurements, as part of a set of information which appeared in monetary units, and ratios resulting from mathematical calculations of information. Thus, these measurements can be defined as performance measures expressed in financial metrics (e.g. profits, budgets, return on investment, market share ...etc), which provide financial information. Emmanuel et al, (1990) argues that in order to support and coordinate the decision making process of the whole organisations, accounting information systems provide formal approaches of collecting relative data, and they offer quantitative and common measures to assess attainment relative to plan or to compare the department of the organisation. Doyle (1994) asserts that profitability is one of the most financial measures used to identify the organisation's success, and this measure has been applied by business for performance measurement. In addition, he claims that profit sometimes is a suitable measure however there are more often financial measures (ratios) such as earnings per share, return on investment, and budgeting, which are presented as financial measures that are used to compare companies/departments with others and/or over a period of time.

Until recent times, scholars (e .g Neely, 1999; Hoque and James, 2000; Browne and Devlin, 2002; Ittner et al, 2003; Mohamed and Hussain 2005; Ong and Teh 2009; Ismail 2007; Banker et al, 2004 and others) conclude that most organisations across many countries, are still relying on financial measures (such as profits, accounting returns, budgets) as of primary importance to evaluate the managerial and financial performance.

In the UK, a survey of the use of performance measures by board members and executives in manufacturing firms found that financial measures such as financial



returns are of primary importance (CIMA, 1993). In the same context, Yeniyurt, (2003) revealed that ,in the UK, companies still consider internal financial measures more important than external market measures. In addition, Bouwens and Lent (2007) used a sample of US managers, to examine the use of various performance measures in determining the periodic assessment, bonus decisions, and career paths of business unit managers. Their findings suggest that financial measures are the most important aspect due to the fact that they create suitable incentives for managers with greater authority, while nonfinancial measures are used only in response to interdependencies. On the other hand, recently in developing countries, Ong and Teh (2009) studied the degree to which financial and non-financial measures of performance are used within Malaysian companies. Their findings indicate that although non financial measures are apparently in the best practices in some companies, the use of financial measures in the determination of business strategy is still a standard practice. In addition, Ismail (2007) examines performance evaluation measures across the private sector companies in an Egyptian context. The findings concluded that Companies rely on both financial and non-financial measures of performance evaluation. But the profit margin, as a financial measure, is also the most commonly used performance measure. In addition to customer satisfaction, as a non-financial measure is starting to be used for performance evaluation.

Traditional financial performance measures (e .g profits, budgets, and ROI) have been used for decades and are still used to provide objective results, and are mainly utilised as a rewarding and motivational tool (Horngren and Sundem 1990). There has been increasing recognition that the reliance on financial performance measures provide a limited perspective on the performance of a company. The main limitations identified were: short-termism, in particular of profitability measures, is determined as a handicap for businesses (Doyle 1994, Emmanuel et al 1990, Fitzgerald 1988, Kaplan 1983). Consequently, the literature of the 1990's supports the use of a combination of both financial and non-financial performance measures. This recommendation can be attributed to two reasons. The former is the limitations of financial performance measurements while the latter is the changing basis of the business environment.



### 3.5.2 Criticisms of Financial Performance Measures

The selection of performance measures is one of the essential issues facing organisations. Performance measurement systems can involve an important function in evaluation systems, approaches to rewards, and developing strategic plans. However, managers think that the use of financial performance measures alone is incomplete, imprecise and lacks the ability to express the facts of the business and their environment. Moreover, some textbooks in management accounting, such as 'Relevance Lost' in 1987 by Johnson and Kaplan, raised an issue and criticised the reliance on financial information in performance measurements. Since then, management accounting literature argues that practices, which were set up in the 1920s', were still dominant in the 1980s'. Thus, management accounting information was inappropriate for managers' planning and control decisions. Particularly, many limitations are linked to traditional financial performance measurements have been recognized in the literature. In addition, various writers (e. g Geanuracos and MeikleJohn, 1993) described the most important criticisms associated with traditional financial performance measurements during the 1980s' and early 1990s'. The following is a summary of the main criticisms in the academic and professional literature:

- 3.5.2.1 Financial measurements are too financially oriented: Kaplan, (1984) points out that, a firm prepares financial reporting for multiple uses for example to fulfil the law requires in addition to their own management reporting systems. Therefore, on the whole, traditional performance measurements are financial and focus primarily on the financial returns rather than the underlying success factors.
- 3.5.2.2 Measures are too historical: financial measurements depend completely on historical information, which is available in financial reporting. The main aim of financial reporting is to deliver financial data to manager which had been taken their care. For example, cost accounting data has the ability to calculate the value added to capital employed over a period of time, but it fails to determine the critical success factors. In addition, companies that work in uncertain environments have affected their effectiveness by using financial measurements because a successful company's financial indicators do not often mean that company can be in the same financial position in the future (Neely, 1999; Geanuracos and MeikleJohn, 1993; Kaplan, 1984 and 1983).



**3.5.2.3 Measures are too internal looking:** many companies found their performance measurement system insufficient for providing information on either competitors or external operating conditions. In 1993, Business Intelligence conducted research to identify the performance evaluation's degree of consideration of external critical factors. They found that most companies did not practise benchmarking against their competitors and did not attempt to develop their marketplace (Geanuracos and MeikleJohn, 1993). The insufficiency of information in these two important areas limited companies' abilities to build long-term strategies for expanding their market share and defending themselves against competitors' strategies (Geanuracos and MeikleJohn, 1993; Johnson and Kaplan, 1987).

**3.5.2.4 Financial measures are short-term orientated:** Financial measures evaluate the financial outcomes, these financial ratios are come from the previous year's financial reporting, which are both historical and short-term oriented. Corporate managers have the ability to expand and amplify financial ratios (Geanuracos and MeikleJohn, 1993). A management team may be encouraged to improve short-term performance ratios by acquisitions, mergers, selling fixed assets and other financial transactions that may improve the short-term performance. Therefore, the organisation's long-term performance would suffer from management disfunction in various ways (Kaplan, 1984; 1983, Hemmer, 1996).

**3.5.2.5 Financial measures focus on inputs:** Companies could assess the costs for any given item relatively easily. On the other hand, they might not easily offer the same level of detail what they get from those costs or in other words, what their outputs are from those costs. Some companies do not pay any attention to their outputs and do not measure those outputs, which are the key factors to providing an image of all the enterprise's efforts (Neely, 1999; Geanuracos and MeikleJohn, 1993; Kaplan and Norton, 1992).

**3.5.2.6 Measures are summarised in nature:** Managers discovered traditional financial measures give sufficient information, but it is not always the accurate type of information. So, the usefulness of this information is limited and it does not provide not enough bases for taking remedial decisions. Especially, it is directed toward functions and the final results, not toward the processes of these results, and, therefore, financial measures are too summarised in nature. Consequently, in today's business world, the main action to improve this situation is to adopt the



accurate performance measures which are addressed toward the right critical success factors (Geanuracos and MeikleJohn, 1993; Kaplan, 1984; 1983).

3.5.2.7 The wide diversity in business strategies employed by organisations such as quality, flexibility, and customer satisfaction cannot be controlled or monitored by using only the traditional financial performance measurements (Ghalayini and Noble, 1996). Also Giannetti et al. (2002) and Norrekkitt (2003) have asserted that traditional financial indicators do not measure intangible assets. In addition, they are lagging indicators because they are not particularly useful for management accounting reports and operational performance assessment (Maskell, 1989; Eccles, 1991).

Before discussing non financial measurement, it is vitally important to underline the changing bases of performance measurements. Bititci et al., (2002) conclude that in order to be able to work in a competitive environment, organisations developed new and flexible approaches to the design of effective performance measurement systems. In addition, the efficiency and effectiveness of performance measurements should be monitored as a means of advancing competitiveness Drury (1997). In the same vein, Kaplan and Norton (1996) suggest that companies should utilize intangible assets which assist organisations in several aspects: Firstly, improve customer relationships that keep the loyalty of customers and gain new customers. Secondly, innovation of new products and services. Thirdly, provide good quality products and services as quickly at low cost, and finally, develop employees' skills and motivation for continuous improvements.

Acknowledgement of the aforementioned limitations has led to views that the financial measures should be extended to incorporate the valuation of the company's intangible and intellectual assets, such as high quality products and services, motivated and skilled employees (via the measurement of human capital), responsive and predictable internal processes, and satisfied and loyal customers in order to reflect the assets and capabilities that are critical for success in today's and tomorrow's competitive environment (Burr and Girardi, 2002; and Kaplan and Atkinson, 1998). These types of performance measures could be categorised as non financial. Furthermore, in response to the above criticism, many academics, consultants and professionals advocated the necessity to use non-financial performance measurements (Keegan et al., 1989; Lynch and Cross, 1995). In



addition, several changes have contributed to the evolution of performance measurements and resulted in the need to use non-financial performance measures. These changes will be addressed in the next section.

### **3.6 Non Financial performance measurements**

As discussed in previous sections, the reliance on financial measures of performance creates problems and is not sufficient for the changing business environment (Bhimani 1994). Kaplan (1983) argues that research to develop non-financial measures such as productivity, quality and customer satisfaction is needed since they can explain businesses' determinant of success better than the financial measures. Barchan, (1998) point out that corporations that selling intangible assets are facing troubles with the traditional financially oriented performance measures as a result of the difficulties in the financial assessment of the intangibles. Therefore, a system that can provide an accurate measurement of the intangibles of the businesses like banks is required.

#### **3.6.1 The definition of nonfinancial performance measures**

When the concept of the non financial measures has been established by performance measurement authors, the authors tend to do it by providing specific examples of these measures. For example, Lau and Sholihin (2005) and Kaplan and Norton, (1992; 1996; 2001; 2004; 2006) argue that non-financial performance measures are those measures that connect many performance perspectives namely the customer, internal business process, and learning and growth. However, and Ittner, et al (1997) Banker, et al. (2000) provide definition for non financial measures in more specific measures for instance product quality, customer satisfaction, and market share. In addition, in line with definition of financial performance measures by the American Accounting Association AAA (1975), it could be concluded that the definition of non financial performance measures is information expressed in non-monetary units and ratios. Therefore, customer satisfaction rate, service defect rate, time span rate, number of customer complaints, number of new customers, labour turnover rate and average flexibility are examples of non financial performance measures. Matthews, (1997) claims that the way used for defining non financial performance measures in the literature, that is to say, providing a list of the elements which fall under the concept as an extension of concept.



On the other hand, the number of measures that are put down in non financial performance measures is limited, in addition to this the use of a couple of examples may create confusion and misunderstanding. For instance, some researchers use the measure market share as an example of a non-financial performance measure (e.g. Banker et al, 2000), while others consider the same measure to be a financial performance measure (e.g. Morisette, 1998).

From the above review of performance measurement literature, it could be noted that they are limited definitions that explain non-financial performance measures, for example Morisette (1998) highlights that non financial performance measures are defined in the literature in two aspects: Firstly, quantitative measures that are expressed as indicators excluding a monetary unit. Secondly, measures that result from mathematical ratios of pieces of information expressed in metrics other than monetary units. However, although the above definitions are provided as the most comprehensive, they have been criticised by some authors. Such as Stede, et al (2006) believes that this definition could be considered incomplete as it ignores the idea of qualitative or subjective non-financial information. In order to avoid disagreement, Franco-Santos and Bourne, (2005) defines non-financial performance measures as any qualitative performance measures, and any quantitative performance measure that are expressed in a metric other than a monetary unit, or that results from mathematical manipulations or ratios of pieces of information expressed in metrics other than monetary units.

The main observation that can be made from the discussion above is that Franco-Santos and Bourne's definition is accumulated in the previous definitions in the literature, so that it has been adopted to assess and evaluate the relevance of non financial measures in this research, because it combines all aspects of the definition of non financial measures in the literature, in addition this definition has generally been accepted by most scholars.

### 3.6.2 Reasons for using non-financial performance measures

There are dissimilar set of reasons that are listed by scholars and practitioners in order to explain the use of non-financial measures to evaluate managerial performance. Fisher, (1995); Ittner and Larcker, (1998) argue that the main reason for using nonfinancial measures is according to the idea that these measures include



forward-looking details about performance on long-term that is unavailable in financial measures. In addition, many authors such as Behn and Riley, (1999); Nagar and Rajan, (2001); and (2005) provided evidence about non-financial measures which are valuable in forecasting the future financial performance.

Ittner and Larcker, (2003); Kaplan and Norton, (2004);(2006); Neely, et al (2002); and Otley, (1999), for instance, suggest that another reason is the idea that the use of non-financial performance measures could accurately align the businesses of corporation with its strategic goals. The idea behind this is that non financial measures could offer strategic data regarding customers, internal processes, competitors, intangible assets, and so on which are difficult to reach with use of financial measures. Furthermore, it could be concluded that non-financial measures are very important because they deal with the causes and not the effects, for example, profit measures as financial measures show the effects of non-financial activities and achievements, but these measures do not identify exactly what it is in your business that you are getting right or wrong. Ittner and Larcker, (1998) and Neely, (1999) conclude that the changing business environment (e.g. increased customisation, flexibility, innovation and responsiveness) is an additional reason for the use of non-financial measures because the reliance on only financial measures is not proper for control of performance of an organisation. Consequently, both financial and non-financial performance measures together are required in order to cope with the complexity and uncertainty of today's business world. In addition, Lillis, (2002) and Stede et al.,(2006) declare that according to the idea that managers have the motivation to focus on activities on which their performance is measured, on account of unmeasured activities, as a result of this a superior measurement diversity is being adopted as a way to decrease such dysfunctional effects. Hemmer, (1996) and Lambert, 2001) show that the use of non-financial measures to determine incentive can improve those measures to provide information on managerial action that financial measures cannot fully do.

Although the above reasons are promoting the use of non-financial measures for performance measurement and compensation purposes, authors have also underlined possible disadvantages for using a set of measures to deal with business performance and compensation. For example Banker, et al, (2004); Lipe and Salterio,( 2002); and Stede et al., (2006) provide evidence to explain that the use of



set of financial and non-financial performance measures could enhance systems complexity and might affect managers' abilities. Likewise, Ittner and Larcker,(1998) argue that the use of a set of financial and non-financial performance measures in incentives also make difficult in the process of assigning relative weights to the different measures. Furthermore, the use of multi-criteria measures may create internal problems because of the difference and incongruence of their objectives such as the conflict between increased innovations as non financial performance and other financial performance like reducing cost (Lillis, 2002; Stede et al, 2006; Wong-On-Wing, et al, 2007). Moreover, Chatterji and Levine (2006) also mention that the costs of the use of a set of financial and non-financial performance measures may be extensive. In addition, the introduction of further measures may reduce the importance of previous measures, which propose that additional measures might not always be advisable.

Although researchers take into account all these shortcomings of the use of a set of financial and non financial measures, until now, the majority of previous studies support the use of multi-criteria performance measures, this is due to possible positive effect for using financial and non financial performance measures on firm's performance.

### **3.6.3 The need for non-financial performance measures**

Fisher, (1995) emphasizes that early attempts at non-financial performance measures were utilised by firms that are trying to get competitive benefits rather than immediate cost savings. They concentrate on value-added products and services for customers. Customer-oriented firms desire the improvement of their performance measurement systems to use customer measures for assessing their organizational effectiveness and efficiency. Schiemann and Lingle, (1997), among others, conclude that firms' strategies are often oriented towards long-terms objectives-financial performance, unfortunately, the majority of financial measures reveal past performance which are not capable of anticipating the future. As a result, in order to survive in today's competitive business environment and to cover the limitations of financial measures, new practical steps are needed (Fisher, 1995). Therefore, an integrated set of measures (financial and non financial) relating one another should be better than one containing only financial measures since the



integrated set may supply more details about essential parts for an organisation to succeed.

Many authors like Kaplan and Norton, (1992); and Olve, et al, (1999) conclude that there is evidence about numerous businesses which are altering their performance measurement systems to approve non-financial measures in order to review new competitive strategies. On the other hand, Schiemann and Lingle, (1996) found out that others businesses are still reliant on financial measures in their performance measurement systems which are lacking to determine the adequacy of their strategies and actions. Lazear, (2000) argues that many companies do not have measures in place related to employees, suppliers, customers and internal processes such as flexibility, adaptability, innovativeness and quality. Kaplan, (1984); and Fitzgerald and Moon., (1996) said that neglecting the key determinants of success happens by reliance by many organisations on short-term financial measures. Consequently, Fisher, (1992) suggests that, in this position, it becomes crucial to find quantifiable measures of the strategic objectives. Likewise, Schiemann and Lingle, (1996) indicates that performance measures, especially non financial, may align employees' interests with the strategy of the company, which is an important factor for achieving the objectives of the company. In the same line, McMann et al., (1994) conclude that in order to improve ability of company's competitiveness and achieve targeted financial performance, alignment of an organization's strategy, and performance measures is necessary. In other words, lack of alignment, among other causes, leads to two main problems: the first problem is that the expected organisation's objectives will not be reached, while the second problem is that the important aspects for success and measuring them will be ambiguous.

#### **3.6.4 The Importance of non financial measures**

Ittner and Larcker, (2003) report that the aims of performance measurements comprise aiding the allocation of resources; evaluating and communicating advancement toward strategic objectives; and appraising performance of managers. On the other hand, traditional financial measures (e.g. return on investment and return on equity) do not always support the future strategy due to their limitations as mentioned earlier in this section. Kaplan and Norton, (1996) and Ittner et al, (1997), among others, reveal that the argument in the appropriate literature is that the proper performance measures be reliant on the business strategy, these measures are non



financial measures which allow managers to be aware of the factors such as customer satisfaction that are essential to the organisation's long-term success.

According to the National Association of Accounting (AAA) (1975) non financial performance measurements offer an important opportunity for managers to develop evaluations and operations systems. Such measures drive management's attention towards the entity's operations and better reflect the financial outcomes in the long term. In addition, Hussain, (2005) argues that the management accounting literature has recognised the significance of non financial measures to the performance evaluation systems, especially, in today's competitive environment. These measures are essential for driving of the long-term financial performance. In addition, Ittner and Larcker, (2003) emphasize that the use of non financial measures in performance measurement systems, managers be able to perceive the organisation's development well before financial statements are formed and assist them to control their resources; employees can gather superior information regarding any specific effort necessary to achieve strategic aims; and investors know how to get a better impression of organisation's total performance. Furthermore, performance measurements help managers to identify better performance, alter strategic target, build specific trade-offs between profit and investment, and create interaction gainfully when the organisational performance is weakening (Neely, et al 1994). Ittner and Lacker (1998) steers that managers tend to set greater emphasis on the financial performance measurements for evaluating the performance of business unit whereas they place on non financial performance measurements for assessing managerial performance.

### **3.6.5 The Use of non financial measures**

Most managerial performance measurement is based on financial performance measures (Eccles, 1991). More recently however, there has been an increased emphasis placed on non financial performance measures such as customer satisfaction, employee satisfaction, productivity, product quality and market share in a wide range of organisations. These measures are timelier, compatible with organisational goals and strategies, flexible and dynamic and able to change when a market needs change. However, there are many non financial measures and a major problem for managers is to decide upon which measures to use (Medori and Steeple, 2000).



Ittner and Larcker (2003) suggest five steps that organisations should follow to make sure that they use non financial performance measures in a productive way to develop a causal model based on the hypotheses in the strategic plan); the first step is to collect the data, that is the record in the database should not be limited to financial measures but should extend to any information system like customer service. The second step is to turn data into information, this by use appropriate statistical methods for testing the causal model. The third step is to continually refine the model, which allows organisations to refine their performance measures and deepen their understanding of the underlining drivers of economic performance. The next step is to base actions on findings, that is mean that organisations should operate on the findings that appear to achieve the greatest financial results. The final step is to assess outcomes by determining whether the action plans and investment produce the desired results.

Addel-Maksoud et al (2008) focus on the use of non financial performance measures in Italian manufacturing companies from six aspects of competition including quality, on-time delivery, customer satisfaction, and employees morale. They found that the most used non financial measures are related to efficiency, utilisation and product quality.

The New York Times (1998) reported that the Ford Motor Company declared that it was going to reward its executives on non financial measures of customer satisfaction and operational measurement. Many academic studies have documented the use of non financial measures in different kinds of organisations and different countries such as the UK, the US, Japan, Germany, Canada and some Arab countries.

### **3.7 The Relationship between non financial and financial Performance measures**

For a long time, it could be noted that organisational efficiency and effectiveness management have been significantly affected by performance measurements used. However, since development of fashionable performance measures non financial and performance measurement frameworks have gained more attention from both academics and practitioners, the important question is whether the non financial performance measures, in fact, provide an organisation's better profitability?. In the literature, the relationship between financial and non financial performance measures has been tested by many authors for instance Ittner and Lacker (1996) and Helmi, (1998) assert that the relationship between financial and non financial measures (e.g. quality and customer satisfaction) in performance measurement systems is positive namely the former complement the latter, and this relationship assists to improve the



future financial performance of organisation. In other words, indicators like quality and customer satisfaction as non financial measures, lead to financial performance. But, Hemmer, (1996) argues that the 'cause and effect' relationship indicates non financial measures give appropriate and timely measures of managerial actions than financial measures, because financial measures do not reflect some aspects in long term of managerial efforts. Whereas non financial measures mainly applied to help managers refocusing on long term aspects of their efforts be better predictors of subsequent financial performance (AAA, 1975; Johnson and Kaplan, 1987). Consequently, non financial measures are good signals of managerial achievements, in addition to this they are very useful in evaluating managerial performance. Furthermore, (Kaplan and Norton, 2004) claim that the main assumption is that, in order to achieve better performance, organisations should place a greater weight on measures (including financial and non financial measures) of different nature.

The relationship among non financial and financial measures has been extensively examined, for example Srinivasan (1997) finds that customer satisfaction as non financial measures is significantly associated with revenues and profit as future financial measures performance. Likewise, Anderson et al., (1997) conclude that financial performance is positive connected with customer satisfaction. In the same line, Ittner and Lacker (1998) confirm that customer satisfaction measures are also linked with current and further market value as financial measures, however, it is not the case with contemporary accounting measures. Moreover, Anderson et al., (1997) found evidence that higher customer satisfaction leads to a higher return-on-investment (ROI). In addition, Banker et al. (2000) employ a longitudinal approach of six years cases studies from eighteen hotel chain to get a better understanding of the relationship between non-financial and financial performance measures. They used customer satisfaction as non-financial performance measures. The findings of their study conclude that the non-financial performance measures are positively associated with future operational profit and revenues. But this is not always true with other financial measures such as costs decreased radically when the non-financial measures were higher. However, Nagar and Rajan (2001) observe that customer satisfaction (using number of complaints indicator) measure has a weak link with financial measures because the complaints measure is not often a real indicator of customer satisfaction. Behn, (2003) also examines the effect of the non-



financial measures (customer satisfaction, and market share) on financial performance. They conclude that non-financial performance measures are associated with current operating income, revenues and operating costs. Srinivasan (1997) and Ittner and Larcker (1998) test the relationship between customer satisfaction as non financial measure with different financial measures, in a sample of 73 bank branches at different levels. They found that the relationship gave mixed results namely higher customer satisfaction led to higher revenues per customer, higher revenue changes per customer, and higher future profit. In addition they show that customer satisfaction measures have a positive impact on future revenues, but the impact on costs, margins and return-on-sales is not significant. Furthermore, they indicate that disclosure for customer satisfaction information in the reporting had a positive impact on stock returns. Nagar and Rajan (2001) investigate the connection between financial and nonfinancial measures and the impact on future revenues. They proved that the changes in non financial measures (defect rate, and on-time delivery) are related to future revenues, but they did not confirm whether improving the non-financial measures does not lead to a higher profit.

In addition, the implementation of non financial measures develop organisations' future financial and market returns (Said et al 2003), whereas Ittner and Larcker (2003) claim that companies that use non financial measures in their performance measurement systems create radically higher returns on asset and return on equity over a five year period. Ittner and Larcker, (1997) and (2003), and Hoque and James (2000) investigated the relationship between the use of non financial measures and business success, they reveal that organisations that their performance measurement systems include non financial measures are sharing the following characteristics: significant assets and capital productivity and strong market position or attempts to improve it.

The improvement in non financial performance measures may cause superior income and shareholder worth. For example, companies select employee turnover as the main non financial indicators, supposing that high employee retention showed a high level of satisfaction and motivation which therefore may develop customer service and finally increase profit (Ittner and Larcker, 2003). In addition, the improvement of organisation's performance may occur when containing non financial measures into bonuses and other rewards systems (Eccles 1991). In



addition, Amir and Lev (1996) confirm that investors depend deeply on non-financial information for assessing investments in telecommunication companies, as a result investors focus on future potential profit over the negative existing financial results. The results from this study suggest that the financial measures alone have not any value significance of investments, they are only relevant in combination with non-financial performance measures. Furthermore, in managerial aspect, organisations that employ total quality management practices and implement compensation systems and information that emphasize non financial measures information are connecting with high financial returns (Ittner and Larcker 1995).

In conclusion, the basis of the above evidence in all studies seem to indicate that non-financial performance measures correlate in different ways with financial measures, and they could be good indicators for future or current financial performance. In addition, non-financial measures are found to be better predictors for financial measures such as revenues, costs and operating income, because non-financial measures are available earlier than financial data. It could be concluded that in order to build better performance measurement systems, it is fundamental for organisations to understand the relationship between non financial measures and financial measures, and to be aware that financial and non financial measures are complementing measures.

### **3.8 The Role of Financial and Non-financial Performance and Evaluation Systems in Strategy Development and Implementation**

From the sections above, it can be noted that performance measures are essential to give executives the appropriate information they require to consider when making decisions. In addition, they allow them to assess the implementation of the strategy and the strategic actions that executives take to track the strategy. Thus, the timeliness of the measures is significant since executives can make their needs to have measure on time to give them helpful information for making decisions. However, Janakiraman, et al, (1992) maintain that non-financial measures offer more timely details than financial measures as many non-financial measures focus on the operations necessary to achieve the financial targets. However, highly accurate measures that give additional information over the current set of financial and non financial measures should be contained to motivate managers to act in the manner aligned with the firm's targets (Baiman, 1990). Demski, (1997) point out



that diverse measure are beneficial for a manager with the purpose of evaluating agents' actions since they are incomplete and there is no measureable way to provide full information on the agents' actions, particularly, the financial information that firms hold is limited in nature and cannot reach everything that managers require for evaluation of performance targets. Hemmer, (1996) declares that the effect of performance assessment exclusively on financial measures that do not adequately achieve some the valuable activities is well documented in the literature. For instance, focus on financial measures short-term results may drive a branch manager to decrease cost by reducing customer service to improve short-term profit. This manner might lead to drop off in long-term sales and profits. Hemmer, (1996) comments that like this misallocation of managerial attention which aligns it with main needs could be avoided by emphasis on a set of balanced measures (financial and non financial measures). In addition, Holmstrom and Milgrom, (1991) argue that a choice or a combination of measures is crucial since reporting all the non-financial information is practical. But in some cases firms are subject to set more weight on non financial measures like market measures than on financial measures (Ittner and Larcker 1987). Banker and Datar (1989) examine the favourable relative weights that should be located in different performance measures. They identify that the sensitivity of signal is the extent to which the expected value of signal changes with the agent's effort used for the correlation with the other signals which may also change with the agent's action. Their findings indicate that this weight should be related to the sensitivity of those signals to the agent's actions and the precision of the signals given to that action. Otley, (1987) designates that control systems rely on organisation's environment and the strategic situation, in addition to this Moon and Fitzgerald, (1996) add that different strategic objectives, environments demand diverse performance measures.

The characteristics of the performance measurement system that are the main drivers of a strategy implementation of an organisation highlight the requirement of measuring the right elements, therefore, the key achievement is to concentrate on the exact measures which underline the need of diverse measures for different strategic circumstances (Moon and Fitzgerald 1996).

Empirical studies support these arguments, for example, Govindarajan and Gupta (1985) discover that strategy is a foundation of contingency for the design of control



systems, namely they realize that for organisations following “build” strategies, that pay attention to efforts which have long-term implications, a focus on long-term aspects had a positive impact on effectiveness, while for organisations following “harvest” strategies, that pay attention to efforts with short-term implications, a focus on long-term aspects had a negative impact. Furthermore, Vaivio, (1999) study is also one of the empirical studies that focused on the role of new performance measurement systems as drivers of strategy implementation. He finds out the appearance of non-financial measures in a customer-oriented firm within the sample is implementing total quality management practices. Therefore, the systematization of non-financial measures is an essential phase in the change process becoming a powerful vehicle for focusing interactive management control into the organization’s strategic uncertainties.

As discussed above, some managerial elements have been introduced to help managers improve their strategic performance measurement systems. Many successful implementations of new measurement systems have been reported (Kaplan and Norton, 1996, 2000; Olve et al, 1999). Researchers have become increasingly interested in the classification of the performance measures. For example, Fitzgerald et al. (1994) organized performance measures along six generic dimensions, two of them related to “ends” or “results” - competitive performance and financial performance -, and four related to “means” or “determinants” - quality of service, flexibility, resource utilization, and innovation. Finally, academic investigation (e.g. Banker et al, 2000) has also grown become increasingly concerned with profit- linked models, obsolete measures of return-on- investment and profitability into measures of productivity, and other managerial dimensions.

### **3.9 Multiple Measures of Performance**

Kaplan, (1983) and Kaplan and Norton, (1992) recommend that manager (and researchers) develop performance measurement systems in order to include non-financial information, such as productivity and quality data while retaining the traditional financial ratios. Otley, (1980) and (1994) argue that one single measure could not provides reliable evidence of the correlation between all stakeholders' satisfaction and firm performance. Many authors (e.g. Ittner et al., 1995; Kaplan et al., 1996) argue that organisations working within the service industry could not depend only on financial performance or non-financial performance indicators,



because of the nature of their productions which are intangible and rely on the human resource, as a result, that may create difficulties for measuring some aspects regarding the productions like quality, customer satisfaction.

This new confirmation for using together financial and non-financial indicators has resulted in the development of techniques utilised multiple measures of performance, for instance, to name a few, Benchmarking, and The European Foundation for Quality Management and the Balanced Scorecard.

Benchmarking is the systematic comparison of elements of the performance of the organisation against that of other organisations (Peters, 1997). Benchmarking could be internal and external. The internal is to compare the internal workings of one department/ branch, process, or practice within the same organisation, whereas the external compares organisations with their peers, chief competitors, or other organizations in the same industry (Peters, 1997). In line with Peters (1997), benchmarking can be divided into three overlapping categories: the First category is strategic benchmarking, which tries to compare and contrast the strategy and direction of the company. The second is process benchmarking, by contrast, looks at the methods, procedures and the business processes of the organisation. The final is statistical benchmarking, which is concerning performance measures and is used to distinguish, compare and/or monitor performance generally on a strategic, as opposed to operational, level. However, Jeneson, (1995) indicates that benchmarking is commonly derived from comparisons of quantitative data that may include a broad range of financial and non-financial measures, for instance return on investment, customer satisfaction and quality performance. But quantitative data only often gives rise to inadequate analysis in the absence of qualitative data that describes the importance or relevance of the measures used.

The European Foundation for Quality Management was launched in 1991 (Li and Yang, 2003). The philosophy underlying this model is that customer satisfaction, employee satisfaction and the beneficial effect of society are achieved through leadership. This model seeks to make policy and strategy, employee management, resources and processes, leading to excellence in business results. Thomas, (1995) claims that organizations using the model believe its primary premise that performance measurement is central and multidimensional performance measures must be incessantly improved and refined. On the other hand, one of the most



popular techniques which emphasises the need for multiple performance indicators is the Balanced Scorecard (Kaplan et al., 1992).

### **3.9.1 The Balanced Scorecard Framework**

Kaplan and Norton, (1992) developed the Balanced Scorecard, which provides a framework to support the use of both financial and non financial measures of performance, that is, in turn, authorizing the organisations to identify their strategic purposes through balancing four perspectives (financial, customers, internal business processes, and learning and innovation) to measure organisation performance. Taken together, the measures provide a holistic view of what is happening both inside and outside the organisation or operational level, thus allowing each department of the organisation to check how their activities contribute to achievement of the organisation's overall. The balanced scorecard framework includes identifying the key elements of processes, setting goals for them, and after that discovering method to measure progress in order to accomplish organisation's objectives. In addition, the balanced scorecard can assist the organisation to illuminate its strategy; communicate and link: strategic objectives and measures to plan; set targets and align strategic initiatives; and to enhance strategic feedback and learning (Kaplan and Norton, 1996). In addition, the balanced scorecard framework is system that measures both current performance and of organisation and drivers of future performance. Specifically, the balanced scorecard framework seeks to identify the critical economic activities of the company that generate current and future cash flows and to make a causal-effect model of the process by which the company creates profits by focusing on both financial and non financial indicators of organisation performance. The success of the balanced scorecard came from its ability to translate a organisation's strategy into a comprehensive set of performance measures (Kaplan et al., 1992). The framework is based on the principle that supplementing the traditional financial measures with non-financial measures of customer relations, internal business processes, and organisation learning and growth in order to identify what the organisation anticipates to obtain from and provide to the different stakeholder groups in exchange for those groups' continued contribution toward the organisation's pursuit of its objectives. Figure 2.1 identifies relationships and premises of the balanced scorecard.



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**Figure 3.1 The balanced Scorecard Framework**

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Source: Kaplan and Norton, "Using the Balanced Scorecard as a Strategic Management System" *Harvard Business Review*, January-February 1996, p. 76.

Kaplan et al., (1996) and Ittner et al, (1998) argue that the framework is clearly based on the increasing acceptance of two related premises. The first is that future success involves providing superior value to customers, employees, and shareholders. The second is that attracting shareholder funds, employee talent, and customers are the three fundamentals of sustainable competitive advantage and superior returns to investors. Within the framework, four perspectives - financial, customer, processes and learning and growth represent the views of four essential stakeholders in any business.

**3.9.1.1 The Four Balanced Scorecard Perspectives**

Kaplan and Norton (1992), the Balanced Scorecard framework identifies four categories of measures to achieve balance between the financial and the non-financial, between internal and external and between current performance and future performance. The four perspectives (financial, customer, processes, and learning and growth/innovation) symbolize the views of four essential stakeholders in any business.

The financial perspective, as reflected in financial measures, is the most traditional and still most commonly used measurement tool. Financial measures are valuable in conveying the readily measurable economic consequences of action already taken. Financial measures are typically focused on profitability-related measures (the basis



on which shareholders, in turn, typically gauge the success of their investments), such as return on capital, return on equity, return on sales, etc., (Kaplan and Norton, 1992; Lipe and Salterio., 2000). These measures are necessary for any organisation trying to measure performance for a number of reasons. First, reporting of financial measures is expected and governed under law. Second, reporting of some types of financial measures of organisation performance is required by institutional bodies. Third, reporting of financial measures is expected from all stakeholders and is ingrained in history as a way of framing and comparing organisational performance.

The customer perspective typically includes several core or general measures derived from the desired successful outcomes of a well-formulated and implemented strategy. These core measures may include overall indicators such as customer satisfaction, customer complaints, customers lost/won, and on-time delivery (Kaplan, 1998; Kaplan and Norton 1997; and Light, 1998). Measures related to customers include customer surveys, sales from repeat customers, and customer profitability. Kaplan and Norton., (2001) state that the customer perspective is a centre of any business strategy which explains the unique mix of product, price, service, relationship, and image that an organisation to provides. This perspective identifies how organisations distinguish themselves from competitors to attract, retain, and deepen relationships with targeted customers. The importance of this perspective is crucial because it assists an organisation connect its internal processes to improved outcomes with its customers (Kaplan and Norton, 2001). Of the four balanced scorecard's perspectives, the customer is at the heart of any business and is critical to long-term improvement of organisation performance (Kaplan and Norton., 1992). Heskett et al., (1994) point out the customer-based virtuous circle, whereby investment in employee training leads to improved service quality; which in turn leads to higher customer satisfaction resulting in increased customer loyalty, which increases revenues and margins.

Internal business process perspective relate specifically to the operational processes of the business unit. Internal business process measures represent the perspective of the operations management within the balanced scorecard model. The internal process perspective is based on the notion that to satisfy customers and earn a financial return, the business must be efficient and effective at what it does. The internal process measures are typically based on the objective of most efficiently



and effectively producing products or services that meet customer needs. For example, such measures may include order conversion rate, on-time delivery from suppliers, cost of non-conformance, and lead-time reduction (Kaplan and Norton., 1996).

**Learning and growth/innovation perspective** represent the employees as part of the four perspectives used to measure performance with the balanced scorecard framework. The innovation and learning perspective is all about developing the capabilities and processes needed for the future. In the banking industry, for example, for a business to succeed not only must it effectively carry out daily transactions but it must also continually improve in terms of the value and cost of its offering. This innovation process can be measured in a variety of ways. These may include the speed of transactions, or the number of people involved in a particular transaction, etc. Again, the choice depends on what is critical for the success of each particular business (Kaplan and Norton, 1996).

Acknowledging that performance measures relating to learning and growth are the most difficult to select, Kaplan and Norton (1996) suggest measures of employee capabilities, information systems capabilities, and employee motivation and empowerment as examples.

### **3.9.1.2 Limitations of the Balanced scorecard**

As discussed above, financial measures alone are seen as having serious limitations, foremost among them being that they are backward-looking. But, many non-financial measures, including elements such as customer satisfaction and employee attitudes, can have similar drawbacks, particularly those non-financial measures, like service error rates, which are lagging indicators (Clarke, 1997). Similarly, the effectiveness of the balanced scorecard will suffer if the included non-financial measures are not linked to or aligned with the firm's strategic objectives (Kaplan and Norton., 1996). Kaplan and Norton (1996) concede these potential limitations and argue that "Scorecards built upon lagging, non-strategic indicators represent only a limited application of the full power of the balanced scorecard".

The balanced scorecard is also weakened if too many non financial indicators are included, and some researchers have noted a tendency for the number of performance measures to increase over time with the resultant risk of weakening the



critical link between performance measures and organisational strategy (Gering and Rosmarin, 2002).

Gering and Venkatramen (2000) conclude that the balanced scorecard can be ineffective or even potentially damaging if it becomes a "balanced brainstorm" or "grab-bag" of ideas to satisfy each constituency independent of common strategic objectives or, even worse, as a set of "scorecards", pitting different and sometimes conflicting indicators against each other and on an equal footing.

In extensive criticism of the balanced scorecard, Norrekkitt (2003) argues that the balanced scorecard's four pillars do not take account of all of an organisation's stakeholders, that it does not take account of competitor actions, developments in technology or, for that matter, any expected event, which makes it static rather than dynamic and thus fails to establish a basis for continuous improvement. This would be especially hazardous in environments classified as uncertain where there is a clear need for organisations to be flexible in meeting unexpected demands (Norrekkitt, 2003).

This lack of flexibility is further impacted by the fact that the research presented thus far has focussed on the application of the BSC to developed markets with little regard to its applicability to organisations operating in developing economies. Kotler and Kartajaya (2000) ascribe industry growth in most developing Asian economies to one of five elements –authoritarian government; state-led development; institutionalisation; Asian values (guanxi); and networks, such as that of overseas Chinese - and little research has been done on the applicability of Balanced Scorecard to such environments.

Although the balanced scorecard assumes a "cause-effect" relationship between the measures of its four' pillars with learning and growth driving the internal business processes, which in turn drives the customer perspective leading to the financial indicators (Kaplan and Norton, 1996), this cause-effect relationship is not a given argues Norrekkitt (2003). For instance, the relationship between high customer satisfaction and good financial results is tenuous (Gering Rosmarin, 2002; and Nonekkit, 2003). In fact, the causal links between all the four pillars is questioned given the lack of empirical findings (Norrekkitt, 2003).



Companies seeking to increase their competitive advantage have to consider both business strategy and business processes, but as Kueng (2000) notes, the balanced scorecard theory's strength is its focus on a company's organizational units, such as strategic business units, not on business processes: "It looks at business processes only as far as they have a great impact on customer satisfaction and achieve an organization's financial objectives" (Kueng, 2000).

Gering and Rosmarin (2002) in their review of how to correctly use the balanced scorecard note that the balanced scorecard empowers an organization by operationalising the strategy discussion and assuring accountability through well-defined results. With targets based on clear financial and non-financial indicators, the balanced scorecard helps to identify a transparent strategy that reduces the risks of delegation. But, they caution, if implemented wrongly, it can become a centralist trap. To avoid these pitfalls, they make a number of recommendations.

Firstly, use balanced scorecard as a centralized control. Secondly, do not try and balance the scorecard as the core of the theory is to use financial measures and to supplement the lag measures with non-financial lead measures and long-term measures consistent with the corporate strategy. The company should make its goals clear and once the strategy has been operationalised, the company should not add new measures that affect the framework. Thirdly, do not use the balanced scorecard as a direct incentive system. Finally, allow middle management to participate and contribute in selecting the appropriate technology with appropriate cost.

Norreklit (2003) points out that ultimately the balanced scorecard can only be as successful as the strategy that underpins it. But, even a well-defined strategy may be difficult to translate into specific relevant performance measures. Norreklit (2003) also argues that mechanisms need to be in place to capture and incorporate the ideas of low-level managers into organisational strategy and that employee involvement or lack thereof in developing a balanced scorecard will influence the success or failure of implementation. But, he concedes that such a level of employee involvement is "inconsistent with the top-down approach control function of the balanced scorecard, whereby strategy and performance objectives are determined by upper management, "as articulated by (Kaplan and Norton 2001).



However, what about the scenario where performance objectives are not determined by upper management, but are dictated by other factors within the social network that organisations operate? Is the premise of the balanced scorecard of a multi-dimensional approach to performance measurement still applicable?

It appears that despite the balanced scorecard acknowledgement that performance measures can only be successfully developed and applied when strategy is considered as a driving force, the factors which may influence the choice of strategy may override the choice of performance measures. It is therefore necessary to examine what factors influence the choice of performance measures if the applicability of the balanced scorecard across differential competitive environments is to be evaluated.

### 3.10 Summary

This chapter has highlighted the theory of management control and some concept regarding performance measurement systems. In addition it has reviewed the traditional performance measures and its limitation for measures performance, the need for non financial measures as complementary measures to financial ones, also this chapter dealt with the relationship between financial and non financial measures. Furthermore, multiple performance measures is reviewed in this chapter to be multidimensional in nature and has specifically reviewed that utilising frameworks encouraging this approach like the balanced scorecard, can provide real benefits to organisations. However, the review has also highlighted a number of limitations with the application, and research reporting on the application of the balanced scorecard. Firstly, it appears that much of the reports on the application of the balanced scorecard focus on organisations operating within developed markets. It would appear important then to add to this research, to provide a more balanced perspective, with additional data which examines the need for multidimensional performance management in developing country cultures.

Secondly, the balanced scorecard contends that by examining organisational strategy, performance measures can be developed by management based on operationalised objectives.

According to Kaplan and Norton (1992) the balanced scorecard translates a firm's strategy into a comprehensive set of performance measures and provides the



framework for strategic measurement and management. However, the balanced scorecard does not acknowledge that the measurement of performance is not always dictated by strategy which management sees as important. Often, especially in environments classified as uncertain, the decision-making power is shifted to other forces, which operates within the industry or organisation's social network. This is the premise of the institutional forces argument, which does not explicitly feature as a consideration in the premise of the balanced scorecard.

It appears important, therefore, that a more extensive examination of what forces can influence the choice of performance measure be undertaken before a conclusion can be made as to whether the balanced scorecard needs to consider additional factors in recommendations on how it should be applied.

The focus of the next chapter will be to therefore, review the contingency theory and factors, which primarily affect the design and use of performance measures.



## **CHAPTER FOUR**

### **PERFORMANCE MEASURES AND CONTINGENCY THEORY**



### **4.1 Introduction**

The management accounting literature presents numerous contingent variables influencing the different aspects of management control systems. As argued by some authors, for example, Chenhall, (2003) suggests that the contingency theory approach is essential for understanding much of performance measurements, due to contingent variables potentially involved in the design and use of management control systems (financial and non-financial performance measurements). The purpose of this chapter is to focus on clarifying the impact of contingent variables on observed uses relating to different types of performance measures. Therefore, this chapter deals with the concept of contingency theory and then contingent variables that influence the design and usage of performance measurements in previous related studies. Contingent variables that have been chosen for use in this study are highlighted and research hypotheses subsequently formulated.

This chapter is structured as follows: the first section provides a brief review of the concept of contingency theory with its initial focus on contingency framework regarding performance measurements. It will highlight the strengths and criticism of contingency theory. The second section discusses the contingent variables adopted in this study, and their relationship with performance measurements. This is followed by a third section, which represents a summary and some concluding remarks. As this study is concerned with financial and non-financial performance measurements, the main emphasis of the study is on reviewing the literature on the contingent variables that are related to issues applicable to performance measurement.

### **4.2 Theoretical underpinning**

The majority of prior research on performance measurement systems that studied impact of financial and non financial information is based on organisational theories such as contingency theory. The notion, mainstream and most important investigations of this theory are reviewed and summarised next.

#### **4.2.1 The notion of Contingency Theory**

In the early to mid-1960 the concept of contingency theory has been developed from organisation theory. However, it was only in the 1970's that the contingency theory has been adopted in the accounting literature, (Gerdin and Greve, 2004). Otley, (1980) states that the motivation for developing contingency theory in management



accounting research has come from the similar developments in organisational theory. According to Dent (2001) and Sorge and Warner, (2001) the emergence of the contingency theory is derived from a view that all organisation management structures have latent strengths and weaknesses, and that contingent factors (specific operating context) will draw out specific strengths and weaknesses.

Waterhouse and Tiessen, (1978) argue that the contingency theory suggests that efficient organization structures and processes are dependent on an organization's context. In addition, Ezzamel (1990) assumes that organisational performance is contingent on the degree to which the structure (systems and processes) of the organisation connect with the prevailing internal and external contingencies environment. Furthermore, Chenhall (2005) points out that theorists of contingency theory have agreed that there is no universal solution for solving organisational problems in all different circumstances, as a result, an effective solution for these problems is contingent on characteristics of the organisation and its surrounding environmental circumstances. Moreover, the environment and some internal contingencies, such as technology, size and structure, appear to have the essential effect of internal organisational processes, systems, and decision-making. Also contingency factors that may affect the organisation's structure have been classified into four groups: characteristics of organisation (i.e. age, size); the technical system it uses; the surrounding environment; and its power relationships (Mintzberg, 1978). These contingent factors, which affect the organisational design and structure, are most likely to be significant and have an effect on management accounting practices (Including performance measurements) (Otley, 1980). He also concludes that changes in the accounting systems rarely occur from nothing, and successful managers quickly to these changes in the environment around the organisation (e.g. markets and technologies...etc), therefore, it is very important before implementing accounting and organisational changes to understand what is driving these changes in the environment around the organisation.

In this regard, Haldma and Lääts (2002) examine the importance and influence of organisations' circumstances on accounting systems. They found that effective design of an accounting system depends on its ability to adapt to changes in internal and external circumstances. Moreover, they add that in order to face the challenges of changing environment, organisations must always assess and develop their management accounting systems. Thus management accountants ought to



understand such changes by estimating and developing their management accounting systems to measure and evaluate their organisations; operational performance. Zimmerman, (2001) stresses that an accounting system should not be implemented merely because similar organisations used the same system; these organisations might be facing/reacting to a different set of external environment. In other words, particular characteristics of proper accounting systems depend on the specific circumstances in which an organization is operated (Otley, 1980). That is to say, the type of organisational structure is affected by its environment, size, the technology, strategy, etc. Moreover, since 1975, many management accounting researchers have used the contingency approach in their research. Contingency theorists (for example Waterhouse and Tiessen, 1978; Otley, 1980; Jones, 1985; Clarke et al., 1999; Haldma and Lääts, 2002; Gerdin and Greve, 2004) indicate that factors such as the environment, technology, and organisational size and structure impact on the choice of accounting and information systems. Therefore, it could be summarised that there is no universally appropriate accounting system that applies equally to all organisations in all circumstances.

However, the question which is still under examination within recent management accounting research is that what these contingent factors that affect organisational change and how do they influence management accounting practices? Further empirical studies are required to confirm and clarify the impact of such contingent variables on management accounting practices. Therefore, this research will attempt to answer this question through an investigation the impact of selected contingent factors on the use of performance measures

#### **4.3 Contingency research bodies**

There are several streams within contingency research. Lawrence and Dyer, (1983) for example, argue that the majority of contingency-based research studied organisational structure as the organisational characteristic that has to be aligned with organisational contingencies. This stream of research is known as structural contingency theory. However, there are contingency theories of many different organisational characteristics such as management information systems (e.g. Weill and Olson, 1989), Human Resource Management (e.g. Delery and Doty, 1996). There is also a specific stream of contingency-based research looking at reward systems (e.g. Balkin and Gomez-Mejia, 1987) and performance measurement



systems (e.g. Otley, 1980). The rest of this section focuses on the last specific stream of research because of its relevance to this study.

In other context, Chenhall (2003) argues that there are many studies that have been carried out to clarify and explain the impact of contingent variables on management accounting practices, these studies can be divided into two groups: the first group involves those that use constructs that aggregate factors into broad dimensions, such as the 'stable- dynamic' and the 'homogeneous-heterogeneous' nature of the environment for example, Hayes's study in 1977. While the second deals with those that identify particular factors of context such as organization size, structure and technology; and specific external environmental characteristics, like uncertainty, competition, and dependence between organizations, Bruns and Waterhouse study in 1975 is an example of this stream. Consequently, this study intends to adapt to the second group of studies since it aims to identify and examine particular contingent factors that affect performance measures in Libyan banks.

#### **4.3.1 Contingency theory of performance measurement systems**

Management accounting systems are a primary part of the control structure of organisations. Gordon and Miller, (1976) mentioned that the contingency theory has expanded to include almost of all the management functions (e.g. planning and control), this is by determining the contingent variables that influence the organisational design and accounting information systems. In line with this view Chenhall, (2003) points out that contingency-based research has a long tradition in studying management control systems.

Management accounting research using a contingency approach has tried to connect the design of management accounting system with a set of contextual factors, for example, environmental uncertainty (e.g. Govindarajan and Gupta, 1985), technology (e.g. Chenhall and Morris, 1986), strategy (e.g. Simons, 1990), and so on. Fisher, (1998) claims that contingency research in the related literature has investigated the relationship between management accounting systems, contextual factors and organisational performance. Balkin and Gomez-Mejia, (1987) and Otley, (1980) argue that the contingency factors that have been examined in research of performance measurements, in general, are external environmental uncertainty, competitive strategy, organisational size, organisational structure and characteristics. In this context, several researchers have developed frameworks in



their studies that resulted in many findings emphasized in both management control and contingency theories, which would improve understanding of the connection between contingent variables and the management control systems. Otley (1980) concludes that although the contingency variables in frameworks are somewhat different, but these frameworks propose that managerial accounting and control ought be viewed as whole organisational control package comprising accounting information systems, performance measurement and reward systems, and organisational design, in addition to the performance consequences of these practices as a function of the firm's external environment, organisational objectives, and strategies.

With regard to using contingency theory in control system design, Dent (1990) argues that several researchers have applied the direct relationship without considering organisational structure while other researchers have used organisational structure as an intervening variable. In addition, the organisational effectiveness has also been used as a dependent variable by several studies whereas other studies have not, both approaches are used but attention is required in following either approach (Chenhall, 2003). As an example of studies that applied organisational structure in their framework, a figure (4.1) shows representative contingency framework developed by Otley (1980). This framework explains how contingent variables impact on the management control technique either through those that are related to organisational objectives, or those beyond the organisation's control (see Fig. 4.1).

**Figure 4.1 A Contingency Theory Framework**



Otley, (1980) suggests that the relationship between the contingent variables and the accounting information system, without structure is inaccurate. This may be attributable to the same contingent variables may affect both on accounting system design and structure. In addition, he adds that it is not common sense to use organisational structure as the sole intervening variable between contingent variables and the choice of the accounting information system, and no single study had combined all four stages in the model shown in Figure 4.1. This framework was in line with previous frameworks developed by Hayes, 1977, who considered the potential of a straight relationship between accounting information design and the contingent variables, whether this relationship is alone or in combination with organisational structure.

The discussion about contingency-based accounting control frameworks has therefore concerned whether organisational structure should be included as a contingent variable and also whether organisational effectiveness should be incorporated in the dependent variable.

Merchant (1998) developed a general framework of contingency theory (see figure 4.2) shows that wherein the contingent variables affect the design of management control system and the correlation between the contingent variables and management control system features will lead to different control outcomes (organisational performance).

**Figure 4.2 A General Contingency Theory Framework**

Source: Merchant (1998)

Merchant (1998) indicates that managers ought to take in their account different contingent variables through they are designing, implementing management control systems. In addition, he adds that contingency framework is used in order to help managers to achieve organisational goals, this usage is contingent upon suitable design of management control system, and the suitability of management control system will be impacted by a set of contextual factors. Thus, Merchant's framework (1998) supposes that there is no universal best management control system which can apply to all organisations in different circumstances. In line with this Gordon



and Miller (1976) state that as a consequence of the contingent nature of well designed accounting information systems, they think that there is no one suitable control system which could be effective for all organisations in different situations.

From the above mentioned frameworks, it could be concluded that no commonly appropriate management accounting systems (i.e. control system), and the selection of proper systems/techniques will be contingent upon situations surrounding organisations. On the other hand, Chapman, (1997) argues that contingency-based research has not yet developed a comprehensive contingency theory in management accounting. Consequently, it could be noted that there is no common comprehensive approach put forward by contingency studies.

In different vein, some contingent factors have been reported in the literature of management accounting to affect the choice and design of management control system. Fisher, (1995) and Merchant,(1998) ,for example, claim that the personality of organisation has participated to a range of contingent variables, and this causes a complexity in studying each variable individually. Thus, Fisher (1995) classifies the contingent variables into five categories as follows:

- 1- The first category comprises variables concerned with the external environment. This category has been widely used in contingency theory literature as the main determinant of organisational design (Waterhouse and Tiessen, 1978). Based on Drury (2004), the level of uncertainty is mainly a contingency variable under this category. Merchant (1998) points out that uncertainty is frequently investigated in management control contingency studies. In addition, Chenhall and Morris, (1986) argue that the environmental uncertainty is a significant contingent variable as it makes managerial planning and control more difficult consistent with the changeability in the potential processes.
- 2- The second category is related to competitive strategy and mission factors. Strategy variables can include three aspects (Langfield-Smith, 1997). These aspects are: Firstly, corporate strategy that is concerned with determining the type of business to operate in and it is studied at the corporate level of organisations. Secondly, business unit strategy that is concerned with how organisations with a high level of functions compete within the industry. Thirdly, operational strategy that is concerned with how different functions in the same organisation continue in implementing competitive strategy. Whereas,



strategic mission is concerned with the stages of product life cycle (i.e. perspective, analyser, and defender). Langfield-Smith, (1997) adds that these aspects show the organisation's intended trade-off between market share growth and maximising profits. Drury, (2004) points out that the perspective strategy is concerned with improving market share more than maximising profits. The analyser strategy depends on maximising profits and cash flow more than improving market share. A hold strategy concentrates on protecting the existing market share and achieving reasonable profits. The defender strategy occurs when organisation starts to withdraw from the market.

- 3- The third category of contingent variables is concerned with technology and interdependence. These variables were developed by the early contingency theorists such as Thompson (1967), and were used as essential contingent variables to study at structural level.
- 4- The fourth category of contingent variables is concerned with organisational and industry variables such as organisational structure, size and kind. Organisation structure plays a major role in understanding management control system design (Chenhall, 2003). According to Merchant, (1998), the contingency theory literature illustrates that organisation characteristics (e.g. size) may influence the design of organisational structure and the use of management control systems. Furthermore, management control systems are different contingent upon the type of industry (Fisher,1995). In this context, according to Drury (2004) manufacturing organisations are likely to design their control system in different ways than services ones.
- 5- The fifth category of contingent variables is concerned with knowledge and observability factors. These factors are related to the types of control that are reliant on the knowledge of the transformation process. Drury, (2002) argues that this category is also concerned with relating the factors with the appropriate type of performance assessment. Furthermore, these factors examine the relationship between accounting information and uncertainty about objectives.

However, Sisaye, (1998) stresses that these five categories could be either internal or external to organisations, and could influence the use and design of management control system organisational performance or effectiveness. Therefore, it could be seen that contingency theory has led to a continuing stream of studies looking to investigate the contingent nature of accounting. In addition, the application of the



contingency theory framework to the analysis and design of organisational control systems has created a substantial amount of interest.

#### 4.3.2 Contingency Theory Strengths

The broad review of the contingency literature argues that contingency framework attempted explore understanding broad issues of management controls. (Selto et al. 1995) articulate that although there are some criticisms concerning contingency frameworks but it continues to be appealing and in use, and it is a suitable theoretical framework for performance measurement issues, because: (1) no other theory directly concerns fit state; and (2) despite criticism, the intuition behind the theory continues to be appealing (see Otley, 1980).

Generally, several of the main advantages of the contingency theory can be summarised as follows:

1. Contingency theory provides some possible explanations of the ambiguities and conflicted findings and results that exist in the universalistic approach (Otley, 1980).
2. Contingency theory attempts to explain how organisational control procedures operate and identifies optimal forms of control under different operating conditions (Covaleski and Dirsmith, 1996). In general, Otley, (1980) points out that contingency structure may provide a more comprehensive approach to the design and use of management accounting systems.
3. Ezzamel and Hart, (1987) indicate that contingency theory consider organisations as open systems, so that organisations could import information, and other equipments from their environments, in turn, they were able to export some services and products to the environment. As a result contingent variables (e.g. environmental uncertainty) that affect organisations' systems are of most importance to examine and measure.
4. A contingency theory of management accounting has a reasonable deal of appeal. It appears to provide a possible explanation for the variety of variables concerning management control systems in practice. Further, the importance of contingency theory to management accounting is being increased because of its interpretations and the development of its framework depend on well-defined variables addressed in the study, in order to explain how management control



system is influenced by different contingencies and how it is integrated into its wider environment of organisational control mechanisms (Otley, 1980).

5. Child, (1975) reports that contingency approach confirms that contingencies must fit in a specific manner in order to achieve the optimal organisational performance. Thus, it has the ability for adjusting to new contingencies, whatever the type of organisation and its operating circumstances.
6. Contingency theory provides the rational analysis base (Jones, 1985). Also, it is an empirical framework, which allows researchers to develop relevant hypotheses, then enables statistical analysis (Xiao et al, 1996).

Thus, the next section discusses the limitations of contingency theory studies.

### 4.3.3 Contingency theory critics

Management control systems, which are considered to be a subsystem within the management accounting systems of the organisation, has been the theme of many empirical studies, however, it has been mainly criticised about issues regarding its empirical testing. For example, the major problem in contingency theory framework is the lack of correspondence between the way in which hypotheses are stated and then tested (Venkatraman, 1989). In Venkatraman's, (1989; 423) words:

*“although it is common for theorists to postulate relationships using phrases and words such as matched with, contingent upon, consistent with, fit, congruence, and coalignment, precise guidelines for translating these verbal statements to the analytical level are seldom provided”.*

Moreover, Ven and Drazin, (1985) declare that in the contingency theory literature there is an insufficient attention paid to the concept of fit where three different approaches were used (selection, interaction or systems). Furthermore, statistically, contingency frameworks have been criticised in how they use multiple regression analysis, in particular, with interaction effects, which has been inadequately used in research examining the impact of organisational contingencies on the design and implementation of management control systems such as budgeting (Hartmann and Moers, 1999). They propose that this difficulty seriously influences the findings of research papers and might also impact on the whole budgetary research paradigm. Overall, in order to make progress of contingency theory, careful consideration must be taken into regarding the methodologies used to empirically test their hypotheses.



#### **4.4 Organisational Effectiveness**

According to Dent, (1990), and Ven and Drazin, (1985) organisational effectiveness was not included in many earlier contingency theory researchers, and these researches have only examined the relationship between contextual variables with the use and design of organisational systems. The reason for that may be organisational effectiveness is a consequence of fit between two or more contingent variables such as environment (Ven and Drazin, 1985). In addition, Donaldson, (1987) and Covin et al, (1994) point out that the concept of fit that identifies organisations are systems, and these systems' effectiveness depend on the existence of internally consistent and mutually reinforcing elements. In view of the fact that, an organisational system like structure is only one factor in organisational system, its content alone cannot guarantee organisational effectiveness. In other words, such effectiveness will bring from the structure being linked with other factors in the system like complementary organisation strategy, acquiring competitive advantages, supported technology, suitable management styles, effective incentive and compensation system and, and to somewhat, the predictability of the environmental uncertainty. On the other hand authors (e.g. Lawrence and Lorsch, 1967) have examined organisational effectiveness in their research design but in a narrow context which uses only the profit as a measure for organisational effectiveness.

In this context, Venkatraman, (1989) defines fit as a match between two related variables, without reference to organisational effectiveness. Bergeron et al., (2001), for example, categorise the concept of fit as follows: (1) fit as moderation, (2) fit as mediation, (3) fit as matching, (4) fit as profile deviation, (5) fit as gestalts, and (6) fit as co variation. In the same regard, Ven and Drazin (1985) have categorised the concept of fit into three categorisations: First is the selection category; this determines contingency variables which most significantly affect the design of the organisation. The second category is interaction, this examines organisational effectiveness through the interaction effects of pairs of variables (contextual factors and design of organisation). While the last approach is systems approach, this asserts the multivariate fit between organisation design in simultaneous manner with many contingencies and organisational effectiveness or performance.

According to Chenhall, (2003) there is no comprehensive definition for organisational effectiveness so that may cause a potentially problematic concept to define, and there has been a lack of the careful development of the concept of fit. In



addition, Ittner and Larcker (2001) mention that managerial accounting theories and frameworks did not give enough guidance on the accurate approach to measure the fit. Therefore, in line with Ven and Drazin, (1985); Donaldson (1987), Venkatraman, (1989); and Covin et al, (1994) it could be accepted that the interaction approach to fit and examine the organisational effectiveness, is more suitable for this study because it concentrates mainly on how contingent variables affect design of organisation, and how these pairs of context and design factors interact to explain organisational effectiveness or performance as defined by Ven and Drazin, (1985); and Venkatraman, (1989). So, interaction approach was utilised in this research to examine the organisational effectiveness.

#### **4.5 Contingency factors in performance measurements**

The literature covers a broad body of research investigating the various influences contingency factors on the use of performance measurements (as example for management practices) or compensation systems and effectiveness performance, (see for example Govindarajan and Gupta, 1985; Hoque and James, 2000; Olson and Slater, 2002; Ittner and Larcker, 2003; Hoque, 2004; and 2005, Said et al. 2003, and Stede et al. 2006). Govindarajan and Gupta (1985) studied the impact of business strategy, as a contextual factor, on the relationship between the reliance on non-financial information for incentive and the performance. They discovered that the strategy is an important factor which impacts on the use of financial and non-financial information for evaluating performance. Corresponding to these results, Olson and Slater (2002), and Hoque (2004) suggest that the association between measurement diversity and performance is dependent on business strategy.

Hoque and James (2000) study the association between some contextual factors (organisation size, product life-cycle stage, and market position), the use of financial and non-financial performance measures, and organisational performance. They carried out a survey of 66 Australian firms result that use financial and non financial measures influenced by contextual factors. In addition, In this case also, Said et al. (2003) investigate 1441 firms about the implications of the use of multi-criteria measures in compensation contracts on current and future performance. They suggest that the firm's operational and competitive characteristics have affected the use of multi-criteria performance measures and in turn the relationship between multi-criteria measures and firm performance. Further, Stede et al. (2006) survey of



128 firms regarding this issue, they report that more extensive performance measurement systems, including non-financial measures, have a higher performance.

Briefly, the impact of using financial and non-financial performance measures seems to be highly impacted on by contextual variables such as business strategy (e.g. Olson and Slater, 2002, and Hoque, 2004), environmental uncertainty (e.g. Hoque, 2005), and other firm's operational and competitive characteristics (e.g. Said et al., 2003). As a result of the previous debate of an extensive range of prior literature regarding performance measurement system following a contingency perspective, several vital contingent variables will be investigated in this study. The contingent variables addressed are organisational strategies, organisational structure, competition, technology, advanced management practices (TQM), and business risk (environmental uncertainty) along with the organisational size as an expected intervening variable. The variables were chosen for two main reasons: Firstly, these variables are important based on the broad range of contingency theory and management accounting literature. Secondly, because these variables are more suitable for the environment of study i.e. Libya as developing country. Therefore, this study attempts to define these contingent variables, in line with Otley (1980). Otley (1980) states that results of previous studies were conflicted. They were ill-defined and measured, and were not comparable to explain the contingent variables' effect of the use of managerial accounting systems.

In addition, the contingency theory literature has been mainly concerned with firms in manufacturing industry, but this research focuses on the use of performance measures in organisations operating in the banking sector. The following section explores the relationship between performance measurements and the contingent variables based on a review of the empirical and theoretical studies.

#### **4.5.1 Business strategy**

Dent, (1990) states that the broadly range of previous literature have taken business strategy as a vital contingency factor. Several classifications of business strategy have been used in the literature ranging from the general to specific. The most universal classification was developed by Miles and Snow's (1978). This model provides a framework for conceptualizing different strategies. Then the framework became the basis for many subsequent studies. Miles and Snow (1978) proposed



four strategic types including prospector, defender, analyser, and reactor strategy. The Prospector type continually develops new markets/products by emphasizing flexibility in its technology and structure. By contrast, the Defender type has a narrow product market domain, a cost efficient technology and a specialized and formalized structure. While the analyser strategy is a unique combination of the Defender and Prospector types. And the final is the reactor, which is characterized by inconsistency in the way it responds to change in its environment, which implies lower performance and instability. In this context Gerdin and Greve (2004) state that three of Miles and Snow classifications, namely prospector, analyser, and defender strategies, are stable forms of organisations. In addition Miller and Friesen, (1983) argue that an organisation should follow one of these strategies, in order to be an effective competitor in its industry, otherwise organisation will not be quick to take action for opportunities and is possible to be an ineffective performance in its industry.

In the same context, Guilding (1999) provides evidence that a strategy is an essential determinant of control systems and performance measurement. He discovers that organisations follow prospector strategy will be more useful in making a greater use of competitor assessment systems and perceive these systems than organisations follow defenders. Moreover, Ittner et al, (1997) found that organisations that following the prospector strategy make greater use of non financial measures than organisations following defender strategy. In this line of thought Anderson and Lanen (1999) carried out an investigation to explore the evolution of management accounting practices in India. Their findings mention that prospectors focus more on non financial performance measures such as customer satisfaction, market share and competitors' performance than defenders. In addition, Gosselin (1997) concludes that prospector strategy is connected to managers' decisions to adopt an activity management approach. In addition, Simons (1987) carried out a survey to investigate the association between accounting control systems and business strategy. He points out that prospectors gave emphasis to fostering individual creativity and innovation while defenders put heavier reliance on formal accounting procedures, especially those related to cost control. The results of the study revealed that prospectors pay high attention to data forecasting in control systems, setting tight budget goals and monitoring outputs, and also they use



their financial controls more intensively. Whereas defenders apply their control systems less intensively also tending to have little changes in their control systems. In addition, defenders award for the achievement of budget targets. These findings are relatively unexpected since they are diverse from the propositions of Miles and Snow (1978) who argue that defenders emphasise controls mainly on cost while prospectors utilize performance measures more individually. On the other hand, Morisette (1998) states that there is no relationship between financial and non-financial information in the strategy of the business, in which strategy are measured by the prospector versus defender.

By contrast, another common classification developed by Porter (1985) who asserts that an organisation could develop a competitive feature by adopting one of the following strategies: the first strategy is cost leadership, which implies that the organisation aims to become the lowest-cost producer in its industry. The second strategy is differentiation, which focuses on providing products or services that customers perceive as being unique. While the third strategy is focused, this dedicates itself to a segment of the market that has special needs that are poorly served by the competitors. In line with Porter (1985) classification, Govindarajan (1988) notes that high performing organisations follow a low cost strategy awarded for the achievement of budget targets. Moreover, Gupta (1987) found that non financial performance evaluation was suitable for organisations following a differentiation strategy. In a different vein, traditional (financial) performance measures are important and appropriate for organisations following a low cost strategy. The adoption of sophisticated performance measurement systems should be taken into consideration in the type of strategy of the business unit (Brignall, 1997, and Guenther and Gruening, 2002). For instance, cost leadership strategy requires different performance measurement systems compared with quality leaders, while the use of non-financial performance measures might be more convenient for a differentiation strategy compared with a low cost strategy.

Empirically, Stede et al. (2006) made a survey of 128 Belgian and US managers, the findings of this study found that there is no connection between business strategy (i.e. differentiation versus low-cost) and the raised use of non-financial measures. In addition, the customer-oriented as non-financial measures are used more with a differentiation strategy. In the same situation, Chenhall and Langfield-Smith (1998) applied Porters strategies to distinguish the advantages from several management



accounting practices. One of the study results revealed that organisations following a differentiation strategy to get high benefits from new management accounting techniques such as balanced performance measures. However, organisations following a low cost strategy gain benefits from traditional accounting techniques. Furthermore, the choice of strategy influences the design of non-traditional results controls within the management control system, in addition to this organisations try to add non-traditional controls into their traditional management control system (Widener, 2004). This finding is consistent with the idea of the balanced scorecard. Other researchers (e.g. Otley and Wilkinson, 1988; Langfield-Smith, 1997), however, indicate that the impact of business strategy on control systems design is unclear and the knowledge of this relationship is limited.

Briefly, those classifications of business strategy could be summarised into several groups, which are: the first group of strategy is a "defender", or "cost leadership" strategy which focuses on being the low cost producer of a narrow product range, while the other type is a "prospector", or "differentiation" strategy focuses on being first-to-market with a variety of innovative products or services (e.g., Miles and Snow, 1978; Porter, 1985). Furthermore, Ittner and Larcker (2001) argue that this simple continuum misses the multi-dimensional nature of strategic choices. There are viable strategies, other than strict defender or prospector, such as providing higher quality than competitors, differentiating products through image, superior customer service, or focus on a particular market niche, or being more flexible in responding to customer demands or copying competitors' innovations (Miles and Snow, 1978; and Porter, 1985).

In general, the impact of business strategy on the use and design of management control systems is well documented such as Chenhall, (2003) who finds out that business strategy is recognised as an important variable in the contingency literature. In addition, Gosselin, (1997) suggests that the need for management accounting innovation is influenced by the type of adopted strategy. In addition, Otley, (1980) asserts that control systems need to be designed particularly to fit with the adopted business strategy in the organisation. More specifically, Abemethy and Lillis, (1995) conclude that the select of performance measures is contingent upon business strategy. Furthermore, Cauvin and Bescos, (2002) indicate that the nature of performance measurement system is different according to orientated strategy. Also, Ittner and Larcker, (2003) studied the data obtained from 140 senior managers



in the financial services industry, their findings reveal that the type of strategy influences the range of use financial and non financial performance measures. Moreover, Hussain and Gunasekaran, (2002) point out that the use of non financial performance measures is to reach long term competitive advantage and these measures rely heavily on the strategy and goals of management. However, Otley and Wilkinson, (1988); and Langfield-Smith, (1997) argue that the literature regarding the effect of business strategy on control system design is controversial and unclear. Thus, there is a need for empirical studies to explore how performance measurements may be used under different strategies. This research attempts to explain further the impact of business strategy on the extent of use of performance measures. As a result of this, it can be expected that banks that follow a prospector strategy are more likely to use a set of performance measures by placing more emphasis on non-financial performance measures. Conversely, banks following a defender strategy are less likely to use traditional performance measures. Therefore, the following proposition is proposed:

**H1:** *There is an association between the typology of business strategy and the extent of performance measures used within the Libyan banking sector.*

#### 4.5.2 Organisational Structure

The organisational structure is regarded as an important element in the internal context that affects the design of management accounting systems. There are various definitions and differences of organisational structure. For example, organisational structure is the way in which an organisation is differentiated and integrated. The former is concerned with the extent to which sub-unit managers act individually, while the latter refers to the extent to which sub-units act in ways that are in harmony with organisational goals (Lawrence and Lorsch 1967). In addition, Mintzberg (1979) identifies structure as the set of the directions in which an organisation separates its labour into distinct tasks and then achieves co-ordination among them. Moreover, Schein (1988) defines structure in terms of hierarchical dimension, functional dimension, and inclusion and centrality dimension. However, Schein's 1988 framework primarily explains formal structure in the organisation, and does ignore the informal one that refers to the relationships that flow behind the organisational chart. This informal structure, or informal relationship, plays a vital



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role in many new forms of organisations such as network or knowledge-based organisations.

In other definitions, efficient management procedures are dependent on several characteristics of organisation structure for instance centralization, procedure specification, or autonomy. In this sense, Waterhouse and Tiessen (1978) suggest that in order to identify issues related to organisational structural variables such as procedure specification and centralization of authority, there is a need to consider the authority distribution, which is normatively expected within an organisation. They argue that authority is given to individuals and groups in order that they may reach ownership targets. The granted authority to individuals within organisations is noticeably different and the form of granted authority is one of the vital elements of organisation structure. They added that the form of authority distribution is typically described in vertical terms, existing on a continuum ranging from centralized to decentralized. In the same context, decentralization has been defined as the granted authority to individuals in different managerial levels within the organisation in a broad scope of organisational activities, which provide the chance to those individuals to exercise their authority in order to develop and implement policies or procedures (Waterhouse and Tiessen, 1978). In addition, they concluded that, in this sense, the requirement for a management control system emerges as the objectives of the individual which is may differ from those of the organisation because of differential self interest. In this case, they clarified that the management control system will play a key role in monitoring this authority. For this, Waterhouse and Tiessen, (1978) stress that the kinds of activities or actions over which individuals have an authority should be determined before the idea of decentralization can be adequately operated. Furthermore, organisational structure mirrors systems which include organisation's elements, relationships between these elements, and relations as a whole that shape one unit (Checkland, 1999). In addition, they added that organisational structure also not only includes elements such as individuals, groups, teams and hierarchical departments, but also other elements for example the relations between organisational components.

From the previous definitions it could be noted that organisational structure principally includes a couple of contrasting needs, differentiation and integration of tasks to attain organisational objectives. In a different vein, Chenhall, (2003) denotes that the importance of including organisation structure in contingency



#### *CHAPTER FOUR -----Performance Measures And Contingency Theory*

research is brought from its impact on many aspects in organisation's systems (the control systems, information flows, efficiency of work, and the motivation of employees). Otley, (1980) argues that the selection of organisation structure in contingency studies has been broadly used in the early contingency research to investigate the relationships between structure and contingent variables such as external environment, technology and size. Furthermore, contingency research has concentrated on the suitable fit between organisation structure and the environment (e.g. Burns and Stalker, 1961), technology (e.g. Thompson, 1967) and size (e.g. Chenhall, 2003). Therefore, it could be noted that organisation structure has identified as a key variable in estimating contingency relationships between the management control system and the contextual factors (Chenhall, 2003; and Franco-Santos and Bourne, 2005).

Considerable attention has been paid to the choice of performance measures. Ittner and Larcker, (2001) found several studies have examined the association between the organisation structure issues and performance measures. Researchers (e.g. Waterhouse and Tiessen, 1978) claim that decentralisation is a suitable response to dynamic environments and that broad scope, non-financial information is needed. In the same context, Hayes and Abernathy (1980) found that performance measures of highly interdependent sub-units were most useful when they include measures to assess managers' reliability, co-operation and flexibility. In addition, the relationship between structure (measured by the proportion of time spent in teams) and the use of financial and non financial measures is a positive relationship (Scott and Tiessen, 1999). Similarly, Chia (1995) conducted research to examine the relations between decentralisation and management accounting systems information and their impact on managerial performance. Their studies showed that the greater the degree of decentralisation is the greater positive impact of the sophistication of management accounting systems in terms of scope, timelines, integration and the level of aggregation on managerial performance. Damanpour, (1991) asserts that organisational structure according to mechanistic/organic categories influences the ability of an organisation to effectively adopt and implement an innovation. In this context, Burns and Stalker (1961) say that mechanistic organisations (i.e. those less open to individual initiation and discretion) are less likely to try innovation than are organic organisations. In addition, Gosselin (1997) examines the factors that influence the adoption and implementation of a new innovation in management



accounting (activity-based costing system). The investigation finds that mechanistic structures (vertical differentiation) facilitate the adoption of management accounting, also centralisation and formalisation were associated with implementing the new innovation in management accounting system. Gordon and Narayanan (1984) investigated the correlation between management accounting system, organisational structure and perceived environmental uncertainty. The findings reveal that there is a significant relationship between structure (organic form of organisations) and the environmental uncertainty importance of external, non-financial information, but after controlling the effect of environment, it is noted that management accounting system and structure are not significantly linked. Moreover, change in organisation structure leads to greater dependence on nonfinancial management accounting information (Langfield-Smith, 2003).

On the other hand, Chenhall and Morris (1986) examined the effect of decentralisation and perceived environmental uncertainty on management accounting system design. The results appear to indicate that the design of management accounting systems was not significantly associated with decentralisation. In this regard, Chenhall, (2003) found that the organisation structure is a central variable in understanding management control system design, but, there is little research which examined the fit between organic structure and management control system. Consequently, the lack of association between structure and management accounting systems does not confirm that there is no relationship between them. Furthermore, Gordon and Narayanan (1984) conclude that the relationship between characteristics of an information system and organisation structure is relatively less clear correlation. Additionally, Dalton et al., (1980) point out that the relationship between structural variables and performance has been relatively overlooked in the literature.

Consequently, this study considers organisation structure as a contingent variable that influences the extent of use of both financial and non financial performance measurements. As a conclusion the following proposition is stated:

**H2: *There is an association between organisational structure (decentralisation) and the extent of use of financial and non financial performance measures in the Libyan banking sector***



### 4.5.3 Environmental Uncertainty (Business Risk)

A contextual variable that many affect the management control systems is business risk, also known as environmental uncertainty (Hoque, 2005). Bloom and Milkovich, (1998) argue that risk is uncertainty about outcomes or procedures, especially regarding the future; and business risk is greater unpredictability in organisational returns and raised opportunities for corporate damage. In addition, Govindarajan and Gupta, (1985) indicates that environmental uncertainty is the unpredictability in the actions of the customers, suppliers, competitors and regulatory groups that include the external environment of the business unit. Furthermore, environmental uncertainty also is divided by Fisher (1995) into three following aspects: Firstly, it is lack of information with respect to the environmental factors influencing a given decision-making situation. Secondly, it does not know how much the organisation will lose if a specific decision is incorrect. Finally, it is the difficulty in assigning probabilities with any degree of certainty as to how environmental factors are going to affect the success or failure of a decision. On the other hand, Waterhouse and Tiessen (1978) have distinguished between two types of environments internal and external, the former includes physical and social factors inside an organisation, while the latter refers to the context in which organisations operate, which consists of economic or political changes which may push management to re-identify or change the organisation's outcomes, which may influence management practices in the firm. In addition, Waterhouse and Tiessen (1978) suggest that internal and external environment have separately two dimensions a simple complex and a static-dynamic. The latter is defined as the extent to which factors are subject to modification over time, it is an important provider to uncertainty in decision making. Thus, it is proposed that factors in the organisation's environment may be planned on a certainty continuum ranging from highly predictable to highly unpredictable.

As consequence of the above definitions, it could be argued that the definition of environmental uncertainty (business risk) has been offered in literature comprising lack of knowledge for decision-making (Lawrence and Lorsch, 1967); choice (Child, 1975); complexity (Galbraith, 1973); unpredictability (Cyert and March, 1963); and turbulence (Emery and Trist, 1965).

Concerning the impact of business risk in management control systems, Chenhall and Morris, (1986) argue that the environmental uncertainty (business risk) variable



has been recognised as an essential factor in management control system researches because it creates difficulties for managerial planning and control according to the unpredictability of the future outcomes or events. In addition, Gordon and Miller (1976) debate that the high level of environmental uncertainty relating to dynamism and hostility result in the use of broad range information (i.e. financial and non-financial). Similarly, Govindarajan, (1984) reports that organisations facing high levels of environmental uncertainty employ a more advanced performance evaluation approach. On the other hand, organisations facing lower environmental uncertainty apply a more traditional performance evaluation approach. For this reason that a manager should be able to expect the conditions that will exist in the near future, it is likely to expect these conditions more accurately under stable environmental conditions than under unstable and changing conditions. Moreover, environmental uncertainty needs broad scope, timely, integrated and aggregated information (financial and non financial), and the linkage between environmental uncertainty and management accounting systems result in high organisational performance (Gui and Chia, 1994). Furthermore, some authors (e.g. Cauvin and Bescos, 2002; Drury, 2002; and Sohn et al. 2003) have concluded that the greater environmental uncertainty requires for more sophisticated management accounting information in respect of it being non-financial and future oriented. In addition, Hoque, (2005) collected data from New Zealand firms, supports the argument that only through raising the level of environmental uncertainty that the use of financial and non financial measures will be increased which in turn results in developing organisational performance.

In general, Chenhall, (2003); Cobb et al., (1995); Morissette, (1998) and Hussain, (2003) and many others, argue that management accounting research has confirmed that environmental uncertainty has been connected with a need for financial and non-financial styles of management control systems. Even if the results of such uncertainty drive management to give more consideration to measuring and improving financial performance than non-financial performances. In addition, others research (e.g. Brignall,1997), notes that management requires an active information system in environmental uncertainty , as a result of this, the type of process will determine the method of the use of performance measures. In contrast, Banker et al. (2001) found that companies that use a balanced scorecard face less environmental uncertainty. Moreover, Verbeeten (2004) found that environmental



uncertainty has no effect on the use of performance measurement diversity. In conclusion, organisations which work under conditions of high uncertainty (risk), will rely on subjective (non-financial) performance measures, while organisations which operating under conditions of low uncertainty (risk) will mostly rely on financial performance measures to evaluate and reward their management. It could be said that the level of environmental uncertainty (business risk) to which an organisation is faced may affect the organisation's control systems namely the use of measurement diversity. Thus, it is propositioning that:

*H 3: There is an association between the use of financial and non financial measures and the level of environmental uncertainty (business risk) within Libyan banks.*

#### 4.5.4 The level of competition

In order to obtain and retain a competitive advantage, there are two basic directions for an organisation to manage the competition it faces, these are competition on price and competition on other factors like quality, flexibility and innovation (Porter, 1980). Porter (1980) also suggests that five elements can form the level of competition, namely: (1) threat of new entrants; (2) threat of substitute products/services; (3) bargaining power of suppliers; (4) bargaining power of customers; and (5) rivalry among existing competitors, these element in turn would influence the design and the use of management control systems.

An attempt was made clarify the position of a firm in competition, from a contingency perspective, the level of competition has been identified in contingency-based research as a major factor influencing an organisation's environment, structure and the characteristics of management control system (Simons, 1990; Cobb et al, 1995; and Libby and Waterhouse, 1996). In this context, Hussain and Gunasekaran (2002) conducted a study to examine the effect of different types of competition on the use of non financial performance measures in Finland, Sweden and Japan. The researcher used the intensity of price competition, the intensity of market competition and the intensity of competition in service quality and variety as measures for determining the intensity of competition. The results of the study suggest differences among the different types of competition concerning their relationship to the use of non financial measures. Price competition appears to have little impact on in the use of non financial measures, distribution competition appears to have a modest positive impact and service quality



competition seems to have a larger positive effect on the use of non financial measures in banking sectors in three countries. Furthermore, Hoque et al., (2001); and Cobb et al, (1995) conclude that the potential determinant of management accounting practices, is the organisation's competition in the markets. In this regard, many researchers (e.g. Ittner and Larcker, 1998; Otley, 1999; and Hussain and Gunasekaran 2002) argue that multiple measures are crucial not only to track the financial performance of the organisation, but non-financial performance are also necessary to track customer satisfaction, innovation and the quality of services. Successful measures in these areas are essential to achieve competitive advantage. In addition, Bhimani (1994) also argues that the adoption of both financial and non-financial measures is an action needed for all types of organisations (manufacturing and non-manufacturing) in order to manage the strength of market competition. Furthermore, Hoque et al. (2001), and Hussain and Gunasekaran (2002) conclude in their studies that the level of competition influences the use of financial performance measures in addition to non financial performance measures (i.e. balanced scorecard measures). In another context, Kaplan and Norton (1992) claim that the balanced scorecard is a more suitable approach under the new realities of competition. In addition, Banker et al. (2001) conclude that organisations that use a balanced scorecard efficiently operate in more competitive markets and face more competitive pressures. Thus, this research considers the intensity of competition as a contingent variable that affects the extent of usage of both financial non financial performance measurements and the balanced scorecard. As a conclusion the following proposition is stated:

*H 4: There is an association between the level of competition and the extent of use of financial and nonfinancial measures in the Libyan banking sector.*

#### **4.5.5 Advanced Management Practices (Total Quality Management).**

Chenhall (1997) has identified advanced management practices (e.g. TQM) as the practices which reflect management philosophies in order to support the process regarding a customer issue. In the same context, the increase of customers' requirements as result of today's changing business environment, need improved quality of products and services. A continuous development in organisation activities with a concentration on the customer is the key aspect of quality and its management. A main issue correlated to quality is total quality management (TQM),



which is considered to be one of the most important components of advanced management practices. TQM enhances concern of the entire organisation in continuously improving quality. Researchers such as (Kaplan, 1983; Chenhall, 1997; Hoque 2003) found that the traditional financial performance measures are inappropriate in total quality management settings because quality is driven by non financial factors such as product design and on-time delivery. On the other hand, the use of non-financial performance measures in organisations advocates adopting TQM initiatives (e.g. Banker et al., 1993; Ittner et al., 1997).

Chenhall (1997) have investigated the relationship between total quality management and non financial performance measures, they found that the relationship between total quality management and organisational performance measurement systems is stronger if non financial measures are applied as fundamental section of evaluation systems. In addition, Ittner and Larcker, (1998) and Brignall et al., (1999) argue that the adoption and implementation of advanced management practices particularly total quality management is a central driver of improvement of performance measurement systems with respect to the use of non financial performance measures.

The relationship between total quality management and non-financial performance measures has been reported in several studies. For example, McAdam and Bannister (2001) study the relationship between business performance and total quality management implementation. Moreover, they conclude that organisations applying total quality management should incorporate financial and non-financial performance measures. In addition, Ittner and Larcker (2001) summarised the related research concerning the advanced management practices and the performance measurement systems. They point out that an organisation adopting advanced management practices like total quality management, are positively connected with the provision of non-financial measures and objectives such as on-time delivery and machine utilization, as well as greater emphasis on non-financial measures in reward systems, however, empirical support for the hypothesized performance benefits from these measurement practices is mixed.

In a different context, the essential reasons to promote balanced scorecard adoption in Finland are the application of total quality management (Malmi, 2001). In addition, Hoque (2003) suggests that using the balanced scorecard for complementing financial with non-financial information is enhanced by the use of



total quality management. Thus, non-financial performance measures must supplement financial measures in providing support for total quality management. According to the above discussion, it is supposed that banks following total quality management are likely to use multiple performance measures. Thus, it can be propositioning that:

*H5: There is an association between the adoption of advanced management practices (TQM) and the extent of use of financial and nonfinancial measures in the Libyan banking sector.*

#### 4.5.6 Foreword of Advanced Technology

Chenhall (2003) identifies that technology has several meanings in an organisation behavior. At a general level, technology refers to how the process operations of an organisation transfer inputs into outputs, which include hardware (e.g. machines and tools), knowledge, software and people. In addition, technology has been classified into small batch, large batch, process technology and mass production categories (Woodward, 1965). Technology is defined by Woodward, (1965) as comprising the physical flow of production. Similarly, Perrow (1967) defines technology as the number of exceptions in the product/service generation process and the nature of the search process when exceptions are met. Furthermore, Thompson (1967) claims that one of the important elements of organisation technology is the interdependence among the firm's subdivisions. In this context, Nahm (2002) concludes that years ago there were major developments in technology with the aim of responding to the business environment changes, because these inflexible management systems failed to work effectively in the post industrial era. Moreover, Doll and Vonderembse (1987) and Jonsson (2000) conclude that all advanced technologies provide chances to capture flexibility and efficiency at the same time, consequently, this results in delivering products and services to customers who require satisfaction across multiple criteria, such quality, delivery, time and service. Walton (1985) argues that the technological advances that are prevailing in the post-industrial era, affect management practices, which, consequently continue to develop to attract changes in technology.

According to many researchers (see for example, Johnson and Kaplan, 1998; Otley, 1994; Nixon, 1998; Banker et al, 1993; Abernethy and Lillis, 1995) it could be argued that traditional financial measures of organizational performance measurement are outdated because of technological development. The effect of



technology on management accounting practices is a well known from in the management accounting literature. In addition, technology is the simplest and longest studying contingent variable applied in management accounting research (Otley, 1980). He also finds that technology has a vital effect on the type of accounting information that can be provided and other work has distinguished other aspects of technology that have an effect on the information that should be provided for effective performance.

For instance, Piper (1978) reveals that the difficulty of the task faced by an organisation relates to identifying a suitable financial control structure. In addition, Otley, (1980) recognizes task variety and task knowledge as factors, which influence the design of a proper management information system. In the same context, Kaplan and Norton (1996) and Hussain and Gunasekaran, (2002) and Hussain (2003) argue in services organizations like banks the effect of advanced technology is relatively higher than manufacturing ones. Moreover, Kaplan and Norton (1996), found that the last two decades have witnessed major deregulatory and privatization initiatives for services companies throughout the world as information technology created the "seeds of destruction" of industrial-era regulated service companies.

Therefore, advanced technologies create a central need for the banking industry to provide a broad diversity of customer services in a quicker and timelier manner, not only to accomplish the requirements of customers, but also to attain economies of scale. A decade ago, the customer was predicted to be able to exercise a mechanical teller machine, telephone and internet banking services. To remain a competitive banking industry is required to provide the essential services (Hussain and Gunasekaran, 2002).

From the management perspective, as mentioned by Hussain and Gunasekaran, (2002) that technology gives a chance to develop and measure performance especially, non financial performance, such as, in terms of customer satisfaction, quality of service, and timely services, it also provides a broader scale and scope of services. In addition, Hussain (2005) concludes that services organizations, especially in financial industry, utilize the latest technologies for example wireless application protocol, financial services via mobile telephone and e-loan, which could impact on improving and measuring non financial performance. As a result, the above evidence supports investigation of the impact of advanced technologies on



performance measurement systems in the banking industry, as this study set the following proposition:

*H6: There is an association between the introduction of advanced technology and the extent of use of financial and nonfinancial measures in the Libyan banking sector.*

#### 4.5.7 Organisational Size

Organisational size has defined size as the scope of an organisation and its responsibilities (Blau, 1972), namely, different sizes represent different degrees of planning, coordinating and controlling the company's internal activities.

The literature has been separated regarding the organisational size into two areas: the first aspect sees the size as a structural characteristic of an organisation, this in line with Franco-Santos and Bourne, (2005) who argues that bureaucratic elements emerged in larger organisations. In other words, larger sized organisations have a larger number of regulations and processes and more exhaustive approaches of planning and control, which intend to keep to a minimum the uncertainty that is related to inadequate information of all the directions of functioning of the organisation. (e.g. Moreno-Luzon and Peris, 1998). The second aspect copes with the contingency perspective where the organisational size is seen as one of the factors of the organisations context that has been investigated as critical for organisational structure (Franco-Santos and Bourne, 2005). Moreover, Granlund and Lukka, (1998) argue that management accounting practices adapt to the changing of business environment in various degrees of responsiveness according to their characteristics of organisation like size, which is the main determinant that identifies the range of potential modification and adaptation to change in business environment. In this regard Biema and Greenwald (1997) determine a number of issues that identify the problems of performance measurement in service organisations such as adaptation to changing business environment can also influence services process. In addition, Hoque and James (2000) find that manufacturing large sized organisations that differ in term of the use of balanced scorecard performance measures than smaller organisations. Moreover, organisational size has been used by many researchers; for example, firm size has been investigated in terms of its relationship to organisational structure (Amburgey and Dacin, 1994), and the use of business performance measures (Franco-Santos and Bourne, 2005). In addition, Otley and Wilkinson, (1988) conclude that the size

of an organisation is one of mainly obvious attributes that have played a role in the development of contingency theory studies, because the organisational size might influence the design of organisational structure and the use of management control systems.

A number of researchers (e.g. Merchant, 1998; and Ezzamel, 1990) found that as an organisation's size raises the management control system is inclined to be more sophisticated. Furthermore, Hendricks et al (1996) indicates that large organisations went through a review of its corporate structure and instituted performance measures appropriate for the new structure. Moreover, organizational size also has an impact on the type of performance measurement system in use and its effectiveness. In another context, Hoque and James (2000) analysed the relationship between organizational size and balanced scorecard. They found that as size increases, organizations find it more practical and useful to place greater emphasis on the balanced scorecard that supports their strategic decision-making. Also, Lawson et al. (2003) found that the rate of usage of scorecard system was affected by the size of the company. In addition, Verbeeten (2004) states that size was positively associated with the use of non-financial performance measures, as Hussain and Gunasekaran, (2002) suggest the same applies in banking industry. The possible reason for the positive relationship between organisation size and management accounting innovation is that larger organisations have relatively greater access to resources to experiment with the introduction of more sophisticated systems (Drury, 2004). Based on this prior reasoning outlined above, this research considers organisation size as an intervening variable.

#### **4.6 Summary**

This chapter has presented a brief discussion on the contingency theory literature and the contingency frameworks. The general conclusion that can be drawn is that the choice and use of performance measurement systems are contingent on some internal and external variables. The contingency approach to management accounting is according to a proposition that there is no universally suitable accounting system, which can be used to all organisations in all different circumstances (Otley, 1980).

Therefore, the contingency-based research has a long tradition in the study of management control systems through explaining the effectiveness of these systems



by examining the nature of the contextual variables (e.g. environment, structure and strategy). This chapter has examined several contingent variables that have been considered to impact on the extent of use of financial and non financial performance measures. With regards to the broad number of contingent variables, this research, has recognized and explained a selection of contingent variables based on the literature review. These variables are business strategy, organisational structure, environmental uncertainty, the level of competition, total quality management, technology, and organisational size.

However, the previous literature review and discussion have revealed two main findings:

- Although the literature has examined the contingency theory of management control systems and the factors that may affect the use of performance measures, little empirical research has been conducted to investigate the effect of such factors on performance measures, especially in developing countries focusing on the banking industry.
- The limitation of consistent findings from the empirical studies suggests these factors are poorly understood both in the literature and in practice.
- The existing literature is conflicting concerning the nature or number of variables that impact on the use of performance measures. In addition, there is no established pattern of the association (i. e. positive or negative) between the use of performance measures and the possible explanatory variables.

Therefore, more empirical research is needed to examine the effect of contingency factors on the use of performance measures, especially in services sector in developing countries.

#### **4.7 Critical and Analytical Review of Previous Studies and the Literature Gap**

The management accounting research has traditionally been interested in the behavioural and performance consequences with greater reliance on financial measures in performance evaluation (e.g. Briers and Hirst, 1990; Otley and Fakiolas, 2000). The literature focused mainly on the association between the use of performance measures and some contextual factors. During the Eighties (e.g. Johnson and Kaplan, 1987) and early Nineties (e.g. Feltham and Xie, 1994; Kaplan and Norton, 1992), the limitations of financial measures for evaluating a firm's performance were highlighted; and the discussions that came followed resulted in an increased research interest in the use of non- financial information and its effects on organisational performance. However, it is from the late Eighties and early Nineties that empirical research into the adoption and consequences of diverse measurement at all organisational levels had a significant increase (Neely, 1999).

This section aims to critically review and identify the various gaps in the literature.

The body of literature which deals with the use of financial and non-financial information in performance measurement systems can be classified as follows. Research in this area has examined the use of financial as well as non- financial performance information in performance measurement systems (e.g. Balanced Scorecards), managerial evaluation and reward practices. On the other hand, research in this area has also paid attention to the impact of different contextual factors (e.g. competition; technology,...etc) on the use of multi-criteria performance measures for evaluating and rewarding staff which, in turn, may affect the organisational performance. The findings of both of these streams of research are now analysed and assessed. Table 4-1 summarises the key details of the body of literature looking at the impact of contextual factors on the use of multi-criteria performance measures.



Table 4-1 summarises the key details of the previous studies looking at the research topic

	Authors	Date	Location	Industry	Data collection method	Data analysis methods	Key findings
1.	Ittner & Larcker	1995	Canada, Germany, Japan, and US	Computer	Survey	Descriptive statistic ANOVA, correlation & regression analysis	Self-reported use of manufacturing measures by managers had a positive impact on perceived performance in some manufacturing settings but not in others
2.	Chenhall I, R.H	1996	Australia	Manufacturing	Survey (37)	Descriptive statistic and regression analysis	The study finds that the performance of organizations which had a high degree of manufacturing flexibility were positively associated with the extent to which managers were evaluated using diverse performance measures.
3.	Chenhall I, R.H	1997	US	Manufacturing	Survey (39)	Descriptive statistics and regression analysis	The association between total quality management and performance is stronger where diverse performance measures are used as part of managerial evaluation.
4.	Perera, et al	1997	Australia	Manufacturing	Survey (109)	Descriptive statistics and regression analysis	The essential finding reveals that the use of non-financial measures (customer-focused) in performance measurement systems is associated with manufacturing strategy, but this association does not linked to an increase in performance.
5.	Sim & Killough	1998	US	Manufacturing	Survey (128)	Descriptive statistic & regression analysis	This study finds a positive relationship between the use of non-financial measures and firm performance
6.	Scott & Tiessen	1999	US	Various industries	Survey (248)	Correlation, regression analysis	The results argue that performance is positively associated with the variety and range of performance measures used. Further, performance is improved when performance is given a greater weight in reward system.
7.	Hoque & James	2000	Australia	Manufacturing	Survey	Descriptive statistic and regression analysis	The findings show that the firm size is positively associated with the use of multi-criteria performance measures. However, firm's market position is not significantly associated with greater performance measures usage. It is also suggested that greater use of multi-criteria performance measures is associated with improved performance, but this relationship does not depend significantly on organisation size, or market position.



	Authors	Date	Location	Industry	Data collection method	Data analysis methods	Key findings
8.	Banker, et al	2000	US	Leisure (hotels)	Archival & interview	Regression analysis	The results reveal that non-financial measures (customer satisfaction) is significantly associated with future financial performance and include additional information not reflected in the financial measures. Furthermore, both non-financial and financial performance improved following the implementation of an incentive plan that includes non-financial performance measures.
9.	Boulianne, E	2002	Canda	Manufacturing and services	Survey (90)	Regression analysis	Results suggest that the type of firm strategy will be impact of broad scope (financial and non financial) information usage on performance.
10.	Hussain, et al	2002	Finnish	Financial services firms	Semi-structured Interviews & secondary data	Analysis in four cross-case comparison	The financial performance measures are regular and essential practices, in many banking sector in Finnish, also non financial measures are less important and not practiced on regular basis. Also they found that some banks' characteristics can affect the use of performance measures.
11.	M Hussain, & Gunasekaran	2002	Japan	Banks	Semi-structured interviews & secondary data	Content analysis	The findings indicate that use of financial performance measures is more important than the use of non financial measures, and social wellbeing and environmental issues affect to some extent to use of non financial performance measures.
12.	Olson & Slater	2002	US	Various industries	Survey (200)	Descriptive statistics	The results of the study suggest that the use of measurement diversity (balanced scorecard) is related to the firms' strategy.
13.	Jusoh et al	2003	Malaysia	Manufacturing	Mail-survey	Descriptive statistics	The findings suggest that the use of non-financial measures appears to be important as it enhances firm performance. More interesting, the findings reveal that the use of multiple performance measures contributes to a more positive outcome
14.	Ittner., & Larcker	2003	US	Service (financial)	Survey (140)	Descriptive statistics	The study finds a positive relationship between the use of non-financial performance measures and performance.



	Authors	Date	Location	Industry	Data collection method	Data analysis methods	Key findings
15.	Said, et al	2003	US	Various industries	Archival (1882)	Regression analysis	The key finding show that the use of diverse measurement have significantly led to higher financial performance. Also there is association between measurement diversity and firm performance is contingent on the firms' operational and competitive characteristics. Results of this study indicate that the environmental uncertainty increase pressures on management to improve and measure financial performance than non financial measures in order to survive in the hostile environmental uncertainty. However, managers would improve and measure non-financial performance in the organizations.
16.	Hussain M, M,	2003	Finland, Sweden and Japan	Banks/Financial Institutions	survey & semi structured interviews	Descriptive statistics	This study presents evidence that firms making more extensive use of a broad set of financial and non-financial measures have higher measurement system satisfaction and stock market returns. This study also shows that the use measurement diversity is negatively related to financial performance. The results of postal survey of companies worked in France show that the use of both the tableau de bord and the balanced scorecard are relatively similar, except for the presence of financial measures which is higher in the tableau de bord than in the balanced scorecard.
17.	Ittner, et al	2003	US	Service Financial	Archival & Survey (140)	Regression analysis	The study reveals that organisational strategic orientation highly influences non financial measures in financial institutions, though the effects of this factor are different in different financial institutions
18.	Bourguignon et al	2004	French	Various industries	Survey (80)	Descriptive statistic	The relationships between non financial measures and contingent firm-specific and external variables are found to be associated with a severely competitive environment, an upward communication corporate ethos, and with the adoption of total quality management.
19.	Hussain, M	2004	Finland, Sweden and Japan.	Twelve Financial institutions	Survey and semi structured interviews	Not mentioned	
20.	Abed-Maksoud A	2004	UK	Manufacturing	Survey	Descriptive statistic, multiple regression and bath analysis statistic	



	Authors	Date	Location	Industry	Data collection method	Data analysis methods	Key findings
21.	Hoque, Z	2004	Australia	Manufacturing	Survey	Descriptive statistic and regression analysis	The study finds that there is a significant and positive association between management's strategic choice and organisational performance acting through management's high use of non-financial measures for performance evaluation.
22.	Hoque, Z	2005	Australia	Manufacturing	Survey	Descriptive statistic and regression analysis	The study finds that the use of non-financial performance measures would lead to improved organisational performance under conditions of increased environmental uncertainty.
23.	Gosselin M	2005	Canada	Manufacturing	Survey (200)	Descriptive statistics, t-test, Spearman correlation, exploratory factor analysis	The majority of organizations is not using non financial performance measures and is still relying on traditional financial performance measures. The results show that there is a need to better understand how organizations design and implement their performance measurement systems and how they support to improve their competence in performance measurement.
24.	Hussain M M	2005	Sweden	Banks	survey, interviews with questionnaire	Descriptive statistics	The main result demonstrates that the actual practices of the recent trends of management accounting in non-financial performance measures are negligible in the studied financial institutions, and management of banks paying more attention to improve and measure financial performance than that to non-financial performance for different reasons that affect the function/operation of banks.
25.	Cho E & Lee M	2005	Korean	Telecommunication	Interviews & Survey	comparison analysis (t-test, ANOVA)	The results suggest that production, economy/market, technology, and external evaluation factors become more significant in the use of performance measures.
26.	Di'az, et al	2005	Andalusia	Aeronautical sector,	Postal survey & structured interview.	Descriptive statistic, Pearson's correlation	The central finding suggests that both financial and non-financial indicators are used, with the financial measures gaining predominance over the non financial on some occasions, even though there is no clear relation between strategy and the measurement of performance.



	Authors	Date	Location	Industry	Data collection method	Data analysis methods	Key findings
27.	Chang & Huang	2005	Taiwan	Service firms	Survey (235)	Regression analysis	The main result found that there is the interaction between performance measurement systems, and strategic human resource management exerted a significant effect on firm performance. The findings of this study confirmed the validity of the contingency model in an Asian society.
28.	Burnaby & Bierstaker	2006	Local Nations & International	Various industries	Survey	descriptive statistics	The key result suggests that most companies tend to have non financial measures for an internal focus performance, whereas they using financial measures benchmarking with competitors and suppliers.
29.	Stede, et al	2006	US and Belgium	Manufacturing	Survey (128)	Descriptive statistic and regression analysis	The result indicates that the use of diversity of performance measures is beneficial. Firms with financial and non financial measure in have higher performance. They also find that firms which emphasize quality in manufacturing use more of non-financial measures.
30.	Carlos, et al	2007	Portugal	Manufacturing	Financial analysts	regression analysis and graphical analysis	The findings of this study clearly underscore the increasing significance of non-financial (customer-based and quality-related) performance measures which are associated with the effectiveness and/or organizational competitiveness to managerial internal use only.
31.	Ismail T H.	2007	Egypt	Private sector	Survey (128)	Descriptive statistics	The results reported that companies rely on both financial (the profit margin) and non-financial measures (customer satisfaction) of performance evaluation. However, the level of use of multi-dimensional indicators is significantly low.
32.	Garengo P & Bititci, U	2007	Not mentioned	Not mentioned	A literature review and interviews	Theoretical	The key finding is that there is relationship between the contingency factors (i.e. corporate governance structure; advanced information practices; advanced behaviours on the part of the people involved; and authoritative management style) and the adoption and use of performance measurement in addition to the development of an improved implementation of a performance measurement.



	Authors	Date	Location	Industry	Data collection method	Data analysis methods	Key findings
33.	Dossi A & Patelli L	2008	Italia	Subsidiary of foreign companies	Survey & interviews	Descriptive statistics, correlation, and Regression analysis	The study find that the incorporation of non-financial measures is positively associated with relative performance evaluation, interactive use of performance measurement systems, subsidiary size, headquarters nationality and subsidiary participation in the design of performance measurement systems.
34.	Jusoh R, & Parnell J A.	2008	Malaysia	Manufacturing	Surveys	Descriptive statistics, ANOVA	The key result suggests that Malaysian firms view competitive strategy differently and are more likely than their Western counterparts to emphasize the use of financial measures of organizational performance.
35.	Wiersma E	2008	Dutch	Service	Survey	Descriptive statistics, content analysis	The result of the study found that the non financial measures do not have more relative information content than financial measures. However, the non-financial measures have incremental information content beyond the financial measures for both future financial performances.
36.	Verbeeten & Boons	2009	Netherlands	Various firms	Survey (201)	Descriptive statistics, correlation, and Regression analysis	The results indicate that specific strategic priorities tend to be associated with the use of non-financial performance measures. In addition, institutional factors appear to affect the use of specific performance measures. However, the study find that no support for the claim that aligning the performance measurement system to the strategic priorities of the firm positively affects performance.
37.	Krinjar, et al	2008	Croatia	Various industries	Survey	Exploratory factor analysis and structural equation modeling	The study reveals that business process orientation leads to better non-financial performance and indirectly to better financial performance.
38.	Pavlatos O & Paggios, I	2009	Greece	Hotels	Survey	Descriptive statistics	The results of the study show that traditional management accounting techniques (e.g. budgeting practices, profitability measures) were found to be more widely adopted than recently developed techniques (e.g. non financial measures). It is concluded that traditional management accounting is very much alive and well. However, adoption rates for many recently developed practices were very satisfactory.



	Authors	Date	Location	Industry	Data collection method	Data analysis methods	Key findings
39.	Joiner et al	2009	Australia	Manufacturing	Survey (84)	A path-analytical model	The results indicate that firms emphasizing a flexible manufacturing strategy use non-financial as well as financial performance measures. Also, these performance measures are associated with higher organizational performance. In addition, there is a positive association between a firm's strategic emphasis on non-financial and financial performance measures.
40.	Chia, et al	2009	Singapore	Various industries	Survey	Descriptive statistic,	The central finding indicates that although the need to provide a balanced set of performance measurement, firms' remains focused on traditional financial measures, conversely some non-financial measures such as customer satisfaction are most measured.
41.	Fullerton, & Wempe	2009	US	Manufacturing	Survey (121)	Descriptive statistic Correlation, structural equation model	The results provide substantial evidence that utilization of non financial performance measures mediates the relationship between lean manufacturing and financial performance.
42.	Ong T S & Teh B H	2009	Malaysia	Manufacturing	Survey (77)	Descriptive statistic	The findings indicate that although the best practice is apparent in some companies, the use of non financial measures in the determination of business strategy has not yet become a standard practice than financial measures.
43.	Sholihin, et al	2010	UK	Manufacturing	Survey & Interviews	descriptive statistics and ANOVA & regression analysis,	The findings suggest that the effect of reliance on multiple performance measures on subordinate managers' performance is contingent on goal specificity. However, the study does not find the same results for goal difficulty.
44.	Avci, et al	2010	Turkey	Tourism (hotels & restaurants)	Survey	ANOVA	The study results show that there is a difference in both financial and non-financial performance based on the strategic orientations followed by tourism enterprises.



#### **CHAPTER FOUR -----Performance Measures And Contingency Theory**

The findings of the critical and analytical review of literature show that the review of the relevant literature relating to the use of performance measures, and contingency factors that might affect the use of performance measures reveal that there are several issues that need to be fully considered in any attempt to gain better understanding of the main theme of the current study. These issues include:

- Very limited number of previous studies investigated a few numbers of contingency factors and their influence in the use and designs of the performance measurements. Moreover, there are conflicting results in some previous studies about the effect of contingency factors of the use of performance measures.
- The adoption of contingency framework to explain the relationship between the use of performance measures and contingency factors has been adopted by a very limited number of previous studies.
- The majority of previous studies have examined either financial or non financial measures separately while very few consider multiple performance measures, and use different aspects to measures financial and non financial performance measures.
- The majority of earlier studies have used only either quantitative or qualitative methods to collect data rather than using triangulation approach. However, there is nearly harmony for using the same techniques (the regression analysis) to find out the relationships.
- A huge number of prior studies focused on the topic in manufacturing sector, and a few studies have been carried out in other sectors like service sector (i.e. banks).
- In addition, most of the previous studies were conducted in developed countries while few surveys have been undertaken in developing countries but not in Libya.

As there is clear gap as illustrated by above literature, this motivates the need to carry out an empirical study to investigate the use of performance measures is required particularly in the financial services sector within developing countries like Libya. and to examine the impact of a set of contingency factors on the adoption and use of performance measures in the developing countries,



#### *CHAPTER FOUR -----Performance Measures And Contingency Theory*

especially following the economic changes witnessed by some developing countries like Libya. Therefore, given the breadth of the performance measurement field, it was important to focus this study on a specific area in order to be able to reach useful conclusions. Thus, the aim of this study is to explore the current use of financial and non financial measures of performance measurement systems in banking industry in Libya, and to investigate the impact of contingent factors on the use of these measures.



## **CHAPTER FIVE**

### **RESEARCH METHODOLOGY AND METHODS**



### **5.1 Introduction**

Previous chapters three and four reviewed the literature related to the performance measurement and the contingency theoretical framework. The aim of this is to understand and find out more about the performance measures and the factors that may affect the use of performance measures. In this regard, Sekaran, (2003) mentions that research can be classified based on their purposes into two types. The first is applied research, which aims to solve a currently existing problem, which is called applied research, whilst the second is basic research, which aims to bridge the gap in the general body of knowledge in a particular area of research. Therefore, this study falls within basic research, because it aims to understand more about the extent of usage of both financial and non financial performance measures in the banking industry.

The aim of this chapter is to explain the research methodology and methods used to collect and analyse data. More specifically, this chapter is structured as follows: it highlights the research objectives and questions. This is followed by discussing the research philosophies and the selected methodology. This will be followed by description of the research design. It then describes the research population and sampling procedures. The data collection methods, including the questionnaire and semi structured interviews will be discussed. This is followed by discussion of the statistical methods used in this research. After this, clarifications of dependent and independent variables in this study are discussed. Finally, the chapter ends with summary of the chapter.

### **5.2 Research Objectives and Questions**

The main aim of this study is to investigate the current use of performance measures in the Libyan banks to be aware of the applications of these measures in these banks. In addition, this study provides additional empirical evidence related to the perceptions of participants by examining and exploring some contingent key factors that might have an impact on the use of different performance measures to reach a conclusion of what is worth taking into account when using these performance measures. To achieve these two broad aims, a number of objectives are formulated.

- 1) To review and study the state of performance measurement systems in general, and the state and extent of using financial and non financial performance measures in particular in Libyan banks.



- 2) To identify and compare the type of performance measures that are utilized by Libyan banks according to their typologies.
- 3) To assess the application of financial and non financial measures for evaluation performance and different purposes.
- 4) To examine whether the use of financial measures has impacted upon the use of non financial measures of the Libyan banks.
- 5) To determine the impact of individual contingent factors on the use of different performance measures.
- 6) To analyse the impact of joint selected factors on the use of financial and non financial measures in Libyan banks.

Towards achieving the study aim and objectives, executives and managers of Libyan banks were asked to answer these central questions:

- 1) What are the performance measures that are currently applied in the different banks in Libya?; and
- 2) What are the factors that might affect the use of these measures?

The following sections will discuss the research methodology, design, data collection methods etc; however, it is important to give brief clarifications for some related concepts, which are used in this study, and these concepts are:

**Research.** Saunders et al. (2007) indicate that research is something that the researcher undertakes to discover things in a systematic way, thereby developing their knowledge. Also, Kumar (2005) defines research as a strategic systematic plan that is used by the researcher to answer questions/test hypotheses validly, objectively, accurately and economically. In this regard, it is noted that "systematic" and "find out knowledge" are two principal reasons for doing research. Therefore, this research intends to find out an answer to the research questions and to add to existing knowledge of a particular subject of study which is related to performance measurement.

**Methodology and Method:** is essential to distinguish between research methodology and research method. Blaikie (1995) finds out that methodology deals with how research is done, or should be done, and it refers to the theory of methods. Whereas research methods are the actual techniques or processes used to collect and analyse data related to research question or hypotheses. In this research, therefore, methodology is used to mean a specific research philosophy and strategy, but



research methods are used to show how the data will be collected and analyzed in the research.

**Research design:** is concerned with the map of the research, and the reason behind it, in order to draw general conclusions. Research design is an important choice and has a major role to play on the whole research (Hussey and Hussey, 1997). Moreover, Creswell (2003) argues that a researcher should choose his research design at an early stage of the research, because research design determines: (1) research methodology, (2) data collection methods, and (3) data analysis and interpretation methods.

### 5.3 Research philosophy

It is important to carry out any research derived from principles of methodology. Researchers need to decide their research paradigm before building the research design, this has central implications for research methodology (Hussey and Hussey, 1997). In addition, Easterby-Smith et al. (2008) state that understanding the philosophical issues of research is valuable for the following motivations: Firstly, philosophical issues could sustain in clarifying research design. Secondly, it can assist the researcher to recognise the suitable design for the research. Finally, philosophical issues can help the researcher to identify and create designs that may be outside researchers past experience. Moreover, a paradigm is defined as the progress of scientific practice based on people's philosophies and assumptions about the world and the nature of knowledge, and it offers a framework including an accepted set of theories, methods and ways of defining data (Hussey and Hussey, 1997). The mainstream of the literature has divided research philosophies or paradigms, into two main perspectives positivism and social interpretivism. The implications of both philosophies are shown in Table 5.1.

Creswell, (2003) suggests that the research philosophies have fundamental assumptions and implications concerning how research should be carried out. On the whole, Easterby-Smith et al., (2002) assert that establishing the most suitable philosophy is still under discussion between researchers.



Table 5.1 implications of positivism and interpretivism paradigms

	POSITIVISM PARADIGM	INTERPRETIVISM PARADIGM
The observer/researcher	Must be independent	Is part of what is being observed/studied
Human interest	Should be irrelevant	Are the main drivers of science
Explanations	Must demonstrate causality	Aim to increase general understanding of the situation.
Research progress through	Hypotheses and deductions	Gathering rich data from which ideas are induced.
Concepts	Need to be operationnalised so that they can be measured	Should incorporate stakeholder perspective
Units of analysis	Should be reduced to simplest term	May include the complexity of whole situation
Generalisation through	Statistical probability	Theoretical abstraction
Sampling requires	Large number selected randomly	Small numbers of cases chosen for specific reasons

Source: Easterby-Smith et al., (2002)

Therefore, knowing the strengths and weaknesses of both paradigms supplies the researchers with perceptive aspects to their research positions. Examples of the strengths and weaknesses of the quantitative and qualitative methods are shown in Table 5.2.

Table 5.2 strengths and weakness of research paradigms

	Positivism (quantitative) paradigm	Interpritivism (qualitative) paradigm
Strengths	<ul style="list-style-type: none"><li>- They can provide wide coverage of range of situation.</li><li>- They can be fast and economical.</li><li>- Where statistics are aggregated from large sample, they may be of considerable relevance to policy decision.</li></ul>	<ul style="list-style-type: none"><li>- Data gathering methods seen as natural as artificial.</li><li>- Ability to look at change processes over time.</li><li>- Ability to understand people’s meaning.</li><li>- Ability to adjust to new idea issues and ideas as they emerge.</li><li>- Contribute to theory generation.</li></ul>
Weaknesses	<ul style="list-style-type: none"><li>- The methods used tend to be rather inflexible and artificial.</li><li>- They are not very effective in understanding processes or the significant that people attach to actions.</li><li>- They are not helpful in generating theory.</li><li>- Because they focus on what is, or what has been recently, they make it hard for policy makes to infer what changes and actions should take place in the future.</li></ul>	<ul style="list-style-type: none"><li>- Data collection can be tedious and require more resources.</li><li>- Analysis and interpretation of data may be more difficult.</li><li>- Harder to control the pace. Progress and end-points of research process.</li><li>- Policy makes may give low credibility to results from qualitative approach.</li></ul>

Amaratunga et al , 2002

In addition, numerous terms had been used in explaining research paradigms. Table 5.3 sums up the universal terms for the main research paradigms.

Table 5.3 Alternative terms for the research paradigms

Positivism paradigm	Interpretivism paradigm
Quantitative	Qualitative
Objective	Subjective
Scientific	Humanistic
Experimentalist	Interpretivist
Traditionalist	--

Hussey and Hussey (1997)



These paradigms have an essential role to play in business and management (Saunders et al., 2007), and the selection of either quantitative or qualitative is contingent upon the current knowledge of the study topic, and the research objectives (Hussey and Hussey, 1997). In this regard, Creswell, (2003), and Hussey and Hussey, (1997) list several characteristics for qualitative and quantitative approaches: the former approach is used to inductively and holistically understand human experiences in context-specific setting. Also, it requires clear knowledge concerning the phenomenon under study, which will then be tested in its wider context over time. Further employing the qualitative (interpretivism) paradigm generally leads to the employment of the inductive approach with research methodologies such as in case studies. On the other hand, the latter approach seeks for causal explanations and fundamental laws, and generally reduces the whole to the simplest possible factors to assist analysis. In addition, the quantitative approach is inclined to relate variables in hypotheses, which are then tested by employing statistical processes. The findings may confirm or prove the theory. Taking the quantitative (positivism) paradigm generally uses the deductive approach with specific research methodologies such as longitudinal studies, cross-sectional studies and surveys.

In the same context, Creswell (2003) also suggests that the strategies, knowledge claims and the methods all contribute to three approaches to research. These approaches are quantitative, qualitative and mixed. The following are the descriptions for each approach that have been identified by Creswell (2003):

- A quantitative approach is one in which the researcher principally adopts positivist claims for developing knowledge, uses strategies of inquiry such as experiments and collects data on predetermined methods that yield statistical data.
- A qualitative approach is one where the inquirer often makes knowledge claims based on interpretivism perspectives for developing knowledge, uses strategies such as case studies and the researcher collects open-ended data and emerging data with the primary intent of developing themes from the data.
- A mixed approach is one in which the researcher aims to base knowledge claims, using both strategies to collect data. The final database represents both quantitative and qualitative information.



Creswell (2003) and Saunders et al, (2007) suggest several criteria to determine the suitable research approach to adopt. Based on these criteria the most important of these are:

- *The research topic.* According to this criterion, a topic with a wealth of literature that helps in developing theoretical framework and hypotheses leads to adopting the quantitative/deductive approach. However, it may be more appropriate to adopt the qualitative/inductive approach for research into a new topic with little existing literature.
- *Time available to the researcher.* The quantitative research can be quicker to complete. On the other hand, qualitative research can be much more protracted. Therefore, the former approach can be a lower-risk strategy than the latter approach.
- *Respondent preferences,* most managers are familiar with the quantitative approach and much more likely to put faith in conclusions resulting from this approach.

#### 5.4 Approach taken by this study

In the light of the discussion above, there appears to be a pattern in the performance measurement and contingency theory field with tendency towards the positivism end of the research philosophies continuum. However, in connection with this study, the selection of research philosophy is made in line with previous studies and is linked to the research objectives.

In achieving the research's objectives, a mixed methods approach was employed. The first step of the research utilized a positivism/quantitative approach through the use of a large scale survey to explore the current use of financial and non financial performance measures, and establish their implications for different purposes, and examine the relationship between the seven contextual factors and the use of performance measures. Measurement of several variables is one of the main features of the positivism approach. Also, the development and testing of the research hypotheses developed on account of the survey with bank managers provides extra reliability to the use of this methodology as formulation and testing of hypotheses is a key characteristic of the positivism approach. In addition, the researcher's background which is from the banking sector in Libya that may influence his interpretation and analysis of findings, therefore, adoption of positivism approach



will give validity and credibility to the research. The second step of the research employed an interpretivism/qualitative approach in order to clarify and confirm the findings resulted from first step of the research. This was achieved through the analysis of findings from semi-structured interviews with managers in Libyan banking industry coupled with the use of the researcher's own observations and prior knowledge of the industry. This reflects the interpretivism approach given the small sample size and in-depth analysis of meanings.

An additional most important aspect of the motivations why a wholly positivism or interpretivism approach was not considered and a mixed methods approach was selected, because a full positivism approach would not allow the research to integrate the views of banks managers to support the findings from the literature and therefore make the research weaker. A wholly interpretivism approach was rejected, however, because this approach relies heavily on an in-depth analysis of small number of respondents to understand behaviour (Bryman, 2001).

The other main reason for applying the mixed method is that mixed approach's aim is to uncover the underlying mechanisms behind reality. However, the purpose of this study is to identify which variables are more central to the use of performance measures and not to find out the reasons behind why this is the case.

### **5.5 Triangulation**

In line with the approach taken by this study, triangulation is strongly suggested as reinforcement of research methods. Saunders et al., (2007) argue that there is growing body of opinions calling for the use of multi-approaches in gathering data in social science, thus triangulation was used in this study as a framework for the development of research design. In addition, triangulation uses mixed quantitative and qualitative methods, which should be viewed as complementary instead of a single method, in other words, it is to examine the same phenomenon from more than one source of data. Moreover, Decrop, (1999) argues that information comes from different sources can be used to deeply clarify/explain the research problem, and it simply limits personal and methodological biases. Also, Bryman, (2001) reveals that the application of triangulation can promote the confidence of study results, because it provides additional dimension of accuracy and permits for better generalisation of findings of study.



In this view of thought, Decrop, (1999) states that triangulation can be applied in social studies via many different ways: For example: the first way is through triangulation of theories where another theories can be adopted to explain the situation. The second way is triangulation of data which is collecting data from different sources such as questionnaires and interviews. The third way is that triangulation of analysis includes application of verification tools of analysis in order to achieve different findings.

According to Bryman, (2001) the decision to adopt a particular research method (i.e., questionnaire or interview) depends on a commitment to an epistemological position that is contrary to a specific paradigm and consistent with another one, triangulation thus supports quantitative and qualitative research as they relate to distinctive epistemological and ontological assumptions but not solid and ineluctable. In this vein, DeVaus (1991) recommends that a mixture of data collection techniques have to be utilized and different tools of analysis employed.

In contrast, this is not always the case, some authors like Fielding and Fielding, (1986) criticise the notion of triangulation that research finding which came from different data methods, can be used mutually to validate the research's assumptions. Moreover, they add that misunderstanding commonalities and differences may take place between data collected with incompatible methods.

Consequently, triangulation was used and data collected primarily through a review of the literature, then from a large scale questionnaire and finally from semi-structured interviews. As well as consistent with the research paradigm adopted for this research, this research applies both survey, specifically questionnaire, as the main method of data collection, in addition to conducting several semi structured interviews to enrich the results and findings of this research.

### **5.6 Development of Theoretical Framework**

The development of the theoretical framework underpinning this research is essential to establish a suitable research design. Therefore, several steps were applied in order to permit the development of theory at each step to inform subsequent steps. Thus, to ensure that the selected literature in the first step is certainly the accurate and comprehensive set of performance measures and set of factors that impact on use of these measures, the first step was a broad review of management accounting literature which highlighted key areas of investigation in



the field such as performance measurement, and also confirmed the importance of the study in banking sector within developing contexts to the performance measurement field (Hussain, 2002, and Intter and Leackter, 2003).

The main literature has identified a broad scope of different uses for performance measures and recognized a wide range of factors that potentially might have an influence of performance measures. Thus, this step is a repeated process, whereby both financial and non financial performance measures were investigated and each of the contingency factors were considered separately and jointly, with the aim of determining the use of performance measures and establishing which of these factors were frequent in the literature and were linked to the use of performance measures.

A final result of the analytical critical process of the literature was the confirmation of a set of performance measures and several contingency variables. Primarily, measures such as financial, customers, internal process, growth and learning, and community measures were selected, and variables such as structure of organisation, uncertainty, technology, and strategy were confirmed as key factors impacting on the use of a set of performance measures. One more variable was added, based on the researcher's experience and observation, which was that the adoption of advanced managerial practices like TQM as well as size of organisation was adopted as controlling variable. So, in total seven variables were identified as frequent factors, in the literature, associated with the use of performance measures. This step formed the basis for the development of the theoretical framework underpinning this research.

The next step is performing unstructured interviews with seven managers in a study context. This is to obtain information about the situation of performance measures used, and get better understanding of the factors that may influence the use of performance measures in Libyan banks. It also involved taking feedback from interviewees about the study objectives and questions.

The followed step utilised the outcomes of the literature review and unstructured interviews to find out empirical evidence to confirm or refute the findings from the early steps, this step was concerned with a large scale survey with the aim of determining the current use of measures to evaluate performance as well as establishing the association between the seven contingency variables and the use of performance measures.



The findings from previous steps improved the outcomes of the research and allowed for a deeper analysis of results to be undertaken. This deep analysis of findings was reflected in the development of the final step of the research further strengthening the theoretical framework underpinning the research. Thus, bank managers were interviewed in order to confirm the results of previous steps. This was a very important step in the development of the theoretical framework underpinning this research as confirmation of research findings in order to reach useful conclusions.

Thus, as discussed above, the four main steps in the research design allowed for the development of the theoretical framework underpinning this research to be informed by findings from each step of the research and relevant actions and amendments to be incorporated into the research based on these findings.

### **5.7 The Design of Research**

It could be argued from the previous section that selecting a research paradigm results in the researcher using a specific research design. The degree of appropriate techniques in research relies on how the researcher selects a proper design. There are several phases of research design for example as reported by Sekaran (2003):

- **Purposes of the study**, which can be categorized into two types descriptive and hypotheses testing. Cooper and Schindler, (2001) assert that the main difference between these types of studies reflect the objectives of the study, therefore the key aim of descriptive studies is to describe the characteristics of the variables, while the aim of hypothesis testing is to explain the nature of some relationships (Sekaran, 2003). Consequently, the first aim of this study is to establish the extent of use of both financial and non financial performance measures in the Libyan banks, so this part could be classified as a descriptive study. However, the other aim is to investigate the influence of several contingent variables of the extent of use of financial and non financial performance measures, this part of the research, therefore, is hypothesis testing study.
- **Type of investigation** is divided into causality or correlation. Causality studies copes with cause-effect relationships between variables but correlational studies are interested in the association between variables. Based on the former point, and consistent with the research objectives, this study is classified as a correlational study.



- **The study setting**, studies can be classified as field or lab studies. A field study is carried out by the actual environmental circumstances, whereas a lab study is usually conducted in an artificial environment. Thus, this study is classified as a field study because it was conducted under the current environment in Libya.
- **Unit of analysis**, it refers to the level of combination of the data collected during the subsequent data analysis such as individuals, groups or organisations (Hussey and Hussey, 1997). So the unit of analysis of this research is the business unit.
- **Time horizon**, studies can be cross-sectional or longitudinal. In the cross-sectional studies data are gathered only at one point in time, might over a period of days or weeks and cross-sectional often used survey method for collect data, whereas in longitudinal studies, data are gathered at more than one point in time, and uses always observation and interviews (Easterby-Smith et al., 2008). So, this study is a cross-sectional because it has been carried out at one point in time.

### **5.8 Research Population Determination**

Sekaran, (2003) argues that the term population refers to the whole group of people, events, or things of interest under study, and the population frame is a listing of all the elements in the population from which the sample is drawn. The population for this research is defined as all banks work in Libya. The rationale for this decision is as follows:

- This research limits the sample to banks to implicitly control the large number of confounding variables that can substantively affect any results from a multi-industry, which is consistent with Intter, et al., (2003) recommendations.
- The service organisations like banks are more relevant and clearly reflect the constructs of this research since its variables, such as intensity of competition, and business strategy are more related to the banks rather than other organisations in Libya (Intter, et al., 2003).
- Drury, (2002) argues that management control systems in manufacturing organisations are different than in services ones. Also, the issue of using non-financial performance measurements for example customer satisfaction and quality are completely different between service and manufacturing organisations due to their characteristics (Hussain and Gunasekaran, 2002).



- The literature review shows that there is a lack of studies focusing on conducting empirical studies in the field of service organisations (e.g. Chenhall and Morris, 1986; Gul, 1991).
- Only banking organisations were targeted because of the difficulty of designing a single questionnaire applicable to both banking and other organisations. In other words, producing two questionnaires, one for banking organisation and other for another organisations makes it difficult to generalize the findings, because of their distinctive features. Further, in service organisation, banks are quite different from hospitals, and hospitals are different from universities and so on. Thus, it was considered that it would not be possible to design a single data collection method like questionnaire that would be applicable to all types of service organisations.

## **5.9 Research Sample Determination**

### **5.9.1 Sample Frame**

Saunders et al., (2007) argue that the sampling frame is a list of all elements of the study population from which the researcher will draw his sample. But in the case where no such complete and accurate list is available, the researcher has to develop his own sampling frame. For this study, the sampling frame for Libyan banks was obtained from the Central Bank of Libya database in July 2009. Therefore, at this time, there are 16 commercial banks and 5 specialized banks in Libya. The commercial banks include three state-owned banks, eleven private banks and two foreign-owned banks, whereas the specialized banks comprise five state-owned banks (See section 2.3.2.2 chapter two for more details). Unfortunately, the foreign-owned banks were excluded because secondary data lacked key variables and the researcher was unable to obtain a response from these banks. Consequently, nineteen different banks were selected for this study, in order to achieve research targets, the data was collected from bank managers (chief executive officers, senior managers and middle managers) of the banks over a nine-week period. Those managers were chosen as participants of this study as they are likely to be the most knowledgeable about the performance measures of their banks.

In a different context, after establishing the sampling frame it was crucial to select the sample method and the sample size. The sample method was randomly adopted



because the researcher had constructed a sampling frame, and it was also more representatives (Sekaran, 2003). And the next section will discuss the determination of sample size.

### 5.9.2 Sample Size

In general, Malhotra, (1999) points out that the increased sample size is needed for several fulfilments such as deriving conclusions requiring high accuracy, large amounts of information, and the use of sophisticated multivariate analysis, on the other hand, this maybe limited by the cost of a large sample size.

In order to determine the suitable size of the sample there are quantitative and qualitative perspectives (Hair *et al.*, 2003). Quantitative perspective includes calculations according to numerous elements: the precision required, the level of statistical significance desired and the number of variables. Each of these elements is directly related to the required sample size.

In context of the use of statistical analyses, it is important to ensure an appropriate and adequate sample size. Such as exploratory factor analysis, Pallant, (2007) recommends that sample size is important, and larger sample sizes should be tracked. Moreover, Hair et al. (2003) suggest that a minimum number of one hundred respondents is reasonable to carry out factor analysis. In addition, Tabachnick and Fidell (2007) state that sample size of greater than three hundred are perfect, and samples of one hundred and fifty are common enough if some of the variables have high loadings. In this regard, other researchers argue that instead of interest of sample size the ratio of response should be taken into consideration as well. This rate (ratio) has been estimated as 5:1 (Hair et al., 2003, Tabachnik and Fidell, 2007) and 10:1 (Nunnally, 1978). For a study with thirty study items, this corresponds to an optimal sample size of between 150 and 300 which is in this study is 163 cases.

On the other hand, the qualitative perspective is important for determining sample size, namely the nature of the research and the desired outcomes, the literature precedent for similar studies, the expected achievement rate and the availability of resources to conduct the study.

The combination of the above perspectives leads to an ideal sample size of approximately one hundred, which confirms the suitability of the data set for subsequent statistical analysis. It is essential to note that this explains the final



sample size following collation of all completed questionnaires. Therefore, it is critical to distribute the questionnaire to as large sample as possible to guarantee that this number is met, although a very low response rate is experienced.

As denoted earlier, initial contacts were made to managers in Libyan banks, out of these, 345 questionnaires were sent to managers in the Libyan banks, of whom 195 responded with completed questionnaires. The received questionnaires were then subjected to a selection criterion including the personal method, in which only the questionnaires with completed the performance measures and contingency factors sections were accepted in order to satisfy the purpose of the research. By this method, 25 questionnaires were rejected. 15 surveys had partially incomplete sections, and telephone contact was therefore made to follow up on this missing data. In addition, 5 questionnaires were rejected due to inability to obtain the missing data, and a further 2 were rejected as they were identified to be outliers as they represented extreme scoring. Following this selection process, a total of 163 questionnaires were accepted, corresponding to a response rate of 40.7%. This rate is considered acceptable for this research, and fulfils the requirements outlined above.

### 5.9.3 Sample Categorization

In order to find out whether there are any differences in the use of performance measures between banks according to their specificities, to realize the impact of banks' characteristics on the adoption of performance measures. So, banks are classified into several categories as follows:

- **Size category:** the size of the bank in which the banks can be split into two sub-groups which are small and large sub-groups based on the total of assets, banks with less than 150 million Libyan Diner (LD) are classified as small whereas banks with 150 million LD or more are classified as large. This is to investigate the relationship between the size of bank measured by the total of assets and performance measures used (Hoque and James 2000).
- **The type of business category:** in this category banks could be divided into commercial and specialised<sup>1</sup> sub-groups banks, with the purpose of examining

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<sup>1</sup> Specialized banks in Libyan context are stated-owned and run by the government, which aimed primarily to achieve social objectives related to socialism idea, in simply these banks non profitable organisations to some extent, because they offer very low interest rate for their services compared to commercial ones.



the argument that the type of industry/business may influence an organisation to apply management accounting practices that differ from other organisations (e.g. Cobb et al 1995).

- **The ownership category**, banks were classified based on this category into two sub-groups -state-owned and private sub-groups. This classification aims to investigate the impact of bank's ownership on the choice and the use of performance measures, which is developed by this study.
- **The type of business strategy**, in line with Miles and Snow (1979) the banks were identified according to the type of strategy adopted into three types of business strategies. These are defender, prospector, and analyser strategies, this classification aims to find out the influence of the type of business strategy orientation in the use of performance measures.

#### **5.10 Data Collection Instruments**

Data collection methods are a vital part of research design. The selection of data collection methods depends also on the facilities available, the time span and other costs and resources associated with gathering data (Sekaran, 2003). Data can be collected in diverse ways, in different settings and from numerous sources (Sekaran, 2003). The selected methods should allow the researchers to achieve the objectives of the study. Qualitative methods of data collection include methods of interviews, focus groups and observations. Quantitative methods include methods of telephone surveys, and questionnaires. As a result, the present research employs a questionnaire and interviews (unstructured and semi-structured) as research instruments to collect data besides archival documents. In this line of thought, Oppenheim, (1992) argues that questionnaires and interviews have been broadly used in social research for collecting data. However, Saunders et al., (2007) say that in a quantitative approach to research, for example, the researcher may choose to apply exploratory interviews at the beginning to identify some issues variables. The data that the researcher gather from such exploratory interviews will be used in the design questions in the questionnaire or structured interview. Semi-structured interviews may be used to explore and explain themes that have emerged from the use of questionnaire. Many researchers such as Anderson and Lanen (1999) have supported semi-structured interviews. Thus, this study used the methods described above in order to assess the extent of usage of performance measures in Libyan



banks, and the impact of some variables on use of these measures. These techniques include: the researcher conducted unstructured interviews with seven managers before designing the questionnaire to enable him to compare, develop and understand what had been written in the literature and the actual situation on the ground. Then, the researcher designed the questionnaire after studying the literature and examining the feedback from the unstructured interviews, and from focus group. After that, semi-structured interviews were conducted with eighteen managers to clarify, understand and add further information about the research topic. It is worth mentioning that this study mainly applied a deductive approach rather than an inductive one. Finally, archival research was employed for collecting data that tends to be publicly available from the Central Bank of Libya databases and/or bank's annual reports. Archival research was used also for validating the information provided from the questionnaire and interviews. The following subsections describe in detail how data were collected by questionnaire, interviews and archival methods.

#### **5.10.1 Unstructured Interview Technique**

After reviewing the literature on performance measures and the factors that may influence the use of these measures within banking and services organisations in different environments, the researcher conducted unstructured interviews with seven managers of Libyan banks, as exploratory research for this study. The sample was selected to represent different types and sizes of banks sector in Libya. Consistent with Zikmund (2003) who states that researchers use this technique with the expectation that following research will supply conclusive evidence. In addition, in other expression, it is may make a misleading way to go through the questionnaires before the check of readily available sources of information have been done like an unstructured interview. Many researchers have employed this technique in their studies before designing their main questionnaire, for example, (Chow et al., 1997). Zikmund (2003) mentions that there are several advantages for unstructured interviews that assists the researcher in the following aspects such as: collecting in-depth information about research topic under investigation, and clarifying the issues studied in the literature. And designing a more relevant questionnaire, as well as checking the potential participants' willingness to the study. Further using visual aids and personal observations, plus understanding to what extent this study could



be extended. On the other hand, this is not sometime the case, because unstructured interviews had some limitations, such as it takes a long time compared with questionnaires, and it requires more skills and experience.

With regards to unstructured interview design, Zikmund, (2003) indicates that there is no standard design for such a technique and it is just initial method conducted to clarify and define the nature of a research problem. Therefore in this study unstructured interviews were used without written questions addressed to interviewees, and it is used for many reasons such as:

- 1) it is used to examine relevance of the research questions designed mainly from the literature.
- 2) it is aimed to take feedback from interviewees about the study objectives and questions.
- 3) it is applied to obtain information about the situation of performance measures, and get better understanding of the factors that may influence the use of performance measures. and
- 4) it is utilized to gain insights and discover new ideas about the research topic.

With reference to unstructured interviews sample, it could be reported that in September 2008, seven Libyan banks were invited to participate in unstructured interviews, initially, 20 managers (chief executive officer, senior managers, and branch managers) in these banks had been contacted by telephone and e-mail informing them about the research aim and objectives, importance of their participation in the current study, and use of data obtained and information only for academic purposes, and promised confidentiality. Table 5.5 illustrates how the researcher managed to obtain a positive response from 7 managers banks (35% response rate) whereas 8 refused to participate in the exploratory study, and 5 gave no response. Interviews were conducted in a friendly, conversational manner.

Table 5.4: Participation rate for unstructured interviews

Number of calls	Positive response	Negative response	Non response	Response rate
20	7	8	5	35%

5.10.2 Questionnaire Design and Administration

A questionnaire is a list of carefully structured questions, chosen after considerable testing to achieve a reliable response from a chosen sample (Hussey and Hussey,



1997). The questionnaire survey is one of the most widespread techniques that has been used in many previous studies, and can be used for both descriptive and explanatory research. For descriptive research, it allows the researcher to identify and describe the variability in different phenomena. For explanatory research, it allows the researcher to investigate and explain relationships between variables (see Saunders et al., 2007). Several researchers (e.g. Oppenheim, 1992; Easterby-Smith et al., 2002; Sekaran, 2003) stress that questionnaires are the most popular method for collecting data and can be categorised into main the types:

Firstly, the personally administered questionnaire is usually presented to the respondents by an interviewer or by someone in an official position (Oppenheim, 1992). This type of questionnaire takes two forms in terms of the distribution method self- administered and group-administered questionnaires (Sekaran, 2003). Secondly, the on-line questionnaire, this type of questionnaire is delivered and returned electronically using either e-mail or the web site (Saunders et al., 2007). Thirdly, mail questionnaire, this is a commonly used method in gathering data in social sciences (Oppenheim, 1992). The questionnaire and covering letter are posted to the respondents with a prepaid envelope for returning the completed questionnaire. There are some advantages to using the questionnaire that can be included as follows:

- The independency of researchers is not a problem when a postal survey is being conducted (Saunders et al., 2007).
- The relatively low cost of conducting postal questionnaire surveys (Kumar, 1999).
- The ability to study a large population at relatively low cost (Owen and Jones, 1994).
- The risk of bias or mistakes in interviews can be minimised by the postal questionnaire survey (Owen and Jones, 1994). However, the questionnaire has its own bias.
- Provides more anonymity to the respondent (Kumar, 1999).

On the other hand, these advantages may not work in several cases like one of the main weaknesses of a postal questionnaire is the low response rate (Owen and Jones, 1994; Kumar, 1999). Also it has the difficulty in clarifying any issue which



may be confusing to the respondent (Innes and Mitchell, 1997). Further, it prevents the responses from applying further information (Kumar, 1999).

Based on the above the mail questionnaire was considered as an appropriate method of data collection because it provides the large amount of cross-sectional data needed for this study. Moreover, an analysis of responses from a large number of banks, which are widely dispersed, would achieve the objectives of this research.

In this context, in order to examine the research argument, a seven-page survey was used to collect specific data about two aspects; namely, the type of performance measures used by Libyan banks; and the contingent variables that might affect the use of these performance measures. In designing the questionnaire, comments and feedback from unstructured interviews, supervision team and focus group were elicited in an attempt to assure that questions were clear and accurate. The key components of the questionnaires were selected as a creation of the theoretical framework, which is derived from contingency theory to explain different variables that affect the use of performance measures. Therefore, using a questionnaire survey in this study was accurate to achieve the research objectives.

The questionnaire mechanism in this research was structured in line with other questionnaires applied in this field by different research (e. g. Vangneur, 1996; Van der Stede, 2001; Youssef, 2007), see Appendix (1). The next sections consider the processes taken to build the questionnaire.

#### 5.10.2.1 Scale Design

The five-point rating scale, such as that described by Likert (1932), is the most commonly adopted method for the development of subject-centred scales (Dawis, 1987). The Likert procedure involves a number of stages, namely the first stage is the writing of a range of items that cover the array of content to be studied. Five-point rating scales are generally adopted, with scoring weights of 1 to 5 assigned to the points. The second stage is that the items are presented to a large number of respondents ( $N > 30$ ). In addition to the individual responses, a total score is calculated for each respondent by summing the scores for each item. This is followed by an item-total score correlation which is performed in order to screen items, and select only those which are able to discriminate between high and low scorers. This can be achieved through employment of an item-to-total reliability test. Cronbach's coefficient alpha (Cronbach, 1951), the widely employed test of the



scale's internal consistency and reliability (Peterson, 1994), is also assessed at this stage. Finally, items which have proved to be the best discriminators are selected, and used to calculate overall scale scores.

As a result of its popularity in the development of scales for numerous surveys and studies, the Likert method has attracted some criticism, for example, Fox et al., (1988) argue that the Likert scale is left open to respondent bias, when the study participants attempt to create a certain impression, such as presenting their own banks in good light. Such bias is likely to result from wording of the items and anchors, and this effect can largely be overcome by careful selection of questions (Oppenheim, 1992).

In this research, respondents were asked, in different ways, if they apply different performance measures in their banks. Therefore, a 5-point Likert scale was used, where the statements were placed in an order, and next to the statements was a grid consisting of five columns: 'strongly agree', 'agree', 'neutral', 'disagree', 'strongly disagree'; each column had a particular value, i. e. 5,4,3,2,1 respectively. Respondents were asked to tick the appropriate box, to indicate how far they agree or disagree with each statement. Number (5) indicated that they strongly agree with what the statement says, number (1) indicated that they strongly disagree with what the statement says and numbers along the continuum indicate different levels of agreement or disagreement. The total score, which is calculated by adding up the scores for each statement, identifies the respondent's position of each type of performance measures and whether his or her bank applies such type of performance measures or not.

Number (3) which is the middle point on the scale represents 'I do not know/neutral'. Karavas-Doukas (1996) highlighted that an attitude scale, such as the Likert scale, is a basic measuring device, consisting of a number of statements to which the respondent must express his or her degree of agreement or disagreement. Depending on the respondent's choice that represents his or her opinion about each statement, a particular score is rendered. Although, one of the limitations of the Likert-type scales is the difficulty of establishing a neutral point on the scale, the neutral point could be, not necessarily, the mid-point between the extreme scores. This depends on the understanding of the topic and context studied (Oppenheim, 1992). Karavas-Doukas, (1996) argues that an odd rather than an even number of response alternatives is preferable under circumstances in which the respondent can



legitimately adopt a neutral position. Therefore, in this research, number (3) is dealt with as the mid and neutral point on the scale that distinguishes between the agreement and the disagreement attitude of the respondent.

The questionnaire used in this study involved items with a five-point rating scale. The odd-numbered scale is important as it allows for adoption of a neutral position – the central point of the scale (Cox, 1980). The exact descriptors for each scale point varied between sets of questions according to the aspect of mass customisation being explored. The selection of the specific items for the scale is discussed in the following section.

#### **5.10.2.2 Item Selection**

An extensive literature review was performed in order to identify items which have previously been used to examine such factors. On the basis of this literature review, fifty-eight items were selected from previous studies, which shaped the theoretical base of the questionnaire. These items were subsequently tested before to include to the survey. The literature revealed a lack of specific items that correspond with the purpose of this study, particularly with respect to performance measures, and some items therefore required change. This comprises the impetus for the two stages of testing which were subsequently performed. The first stage of testing involves focus group, which will be discussed in more detail in the following section. From the suggestions of the focus group, some items were removed, some were amended to assist with clarity, and others were added. This resulted in an initial questionnaire which was completed by twenty four bank managers in a pilot study.

Items with low correlation with item-to-total and low Cronbach were removed from the questionnaire, giving rise to the questionnaire in its final form, as shown in Appendix (A). In order to investigate the current use of performance measures and examine the impact of contingent factors, sixty-one items were initially selected. Items were taken from a number of sources (Vangneur, 1996; Van der Stede, 2001; El-Gendy, 2004; Youssef, 2007).

This selection was also supported by the recommendations of the focus group. These items provided a starting point for the preparation of the final questionnaire, and some items were subsequently modified or removed in order to ensure that the most valuable information was collected. As a result of this selection procedure, there were a total of fifty eight items.



### 5.10.2.3 Question types and format

Saunders et al, (2000) Easterby-Smith et al., (2002) argue that question design is related to the level of validity and reliability of the research, thus the main decisions in this stage should be related to the type of questions. Several researchers (e.g. Oppenheim, 1992) recommend using guidelines for designing questions. In this regard, there are three important issues in designing the questions in the questionnaire, which are related to the wording of the questions; the general appearance of the questionnaire; and how the variables should be categorised, scaled and coded (Sekaran, 2003). Further, Hair et al. (2003) suggest other issues that relate to design questions for example: (1) the concepts to be measured should be well-known and identified and a method of measurement determined, and (2) decisions on classification and outcome information, types and wording of questions, questionnaire sequence and layout.

However, all the above guidelines were taken into account in order to reduce biases in this research. For example, the covering letter mentioned the aims, objectives and importance of the study. Furthermore, attempts were made to exercise easy and clear questions, such as the wording of each question was carefully considered to provide one possible meaning and to avoid ambiguity. In addition, a guideline statement was used before answering all the questions in each section in the questionnaire. In types of questions context, Oppenheim (1992) claim that questions could be classified in different types as follows:

- *Factual and non-Factual Questions.* Factual questions deal with details for example respondents' job title, the occupation of respondents in the organisation. This type of questions is important to explain the sample and to classify respondents. Non-factual questions cope with opinions, beliefs and attitudes, for example, questions concerning the level of satisfaction about performance measurement systems used.
- *Open-Ended and Closed Questions.* Saunders et al., (2007) argue that in open-ended questions the researcher does not provide any set of choices, and respondents are free to answer in any way they select. On the other hand, in closed questions the respondents should make choices among a set of alternatives given. These type of questions help the respondents to make quick decisions and the



researcher to code the information easily. Also, the closed questions can be classified into the following types:

- **List questions:** This type provides the respondent with a list of responses any of which they can select. Such questions are useful when the researcher needs to establish that the respondent has considered all possible responses.
- **Category questions:** This type is designed so that each respondent's reply can fit only one category. Such questions are useful to collect data about attributes.
- **Ranking questions:** This type asks the respondents to place things in ranking order. Such questions are useful to discover the relative importance to the respondents.
- **Quantity questions:** This type requests the respondents the amount of a characteristic and tends to be used to collect behaviour or attribute data.
- **Grid questions:** This type allows the researcher to record the responses to two or more similar questions simultaneously.
- **Scale questions:** This type is often applied to gather attitude and beliefs data. The most general approach is the Likert scale in which the researcher requests the respondents how strongly they agree or disagree.

Among these types of questions, several open questions were used in this research in the form of (other please specify). Also, an open question was used in section two of the questionnaire to obtain information about the number of strategic objectives and measures employed in the performance measurement techniques. Also open questions were used in section one to obtain information about the respondents and to provide the respondents with a space to comment on the questionnaire. The reason for using a limited number of open questions is that these questions may discourage busy respondents from replying to the questionnaire (Hussey and Hussey, 1997).

The key types of questions applied in this study were closed questions, but still allow some scope for expressing opinions. The justification for this selection is that these types of questions are typically utilised in quantitative studies using large-scale surveys (Hair et al., 2003). These types of closed questions were extensively employed throughout the questionnaire sections to measure research variables.



#### 5.10.2.4 Questionnaire layout and flow

(Hussey and Hussey, (1997) argue that a questionnaire can often lead to a low response rate and a non-response bias. Sekaran, (2003) suggests that considerations should be focused on the layout and the flow as an important part of building the questionnaire. In this vein, Saunders et al. (2007) recommend that the layout of the questionnaire should be attractive to encourage the respondents to fill it in and return it. The common rule is to keep the questionnaire as short as possible. A good questionnaire should include precise instructions to the respondents, and the questions should be presented in a logical order. In addition, Sekaran (2003) stresses that the form of the questions should assist the progress of the responses from the start to the end of the questionnaire.

Consequently, in developing the questionnaire instrument, a number of layout considerations were taken into account. Primarily, Likert scales were used as the main response format because they are quick and easy to use (Zikmund, 2003). Further, the questionnaire was divided into four sections and each section included sub-sections. Questions were grouped by topic area and presented in a logical order to build a sense of continuity. The same or similar topic headings were used for sections in order to develop the continuity element. Different fonts were used to indicate headings, subheadings and questions to provide a careful and professional finish to the questionnaire, and each section of the questionnaire consisted of clear instructions. In addition, the first page of questionnaires consisted of the name of the Liverpool John Moores University followed by the title of the research. This followed by aim and objectives of study. The page ended with the name of researcher and his supervisor.

Thus, the questionnaire started -with the most important questions and sensitive questions were left until the end. The flow of the questions was designed as follows: the first section of the questionnaire was designed to obtain general information about respondents, surveyed banks, and the performance measurement systems used. The second and third part is the essential part of the study and was placed at the beginning of the questionnaire (i.e. questions about performance measurement, and their practices). The last questions relating to the contingency variables were grouped respectively. This was used to encourage greater response as having taken the time to complete the questionnaire, respondents was less likely to abandon



completion of the questionnaire (Frazer and Lawley, 2000). Further, page layout was also taken into account in order to make the questionnaire user friendly and easy to read. Tick boxes were provided to enable easy completion of questions. Colour papers were used to print the questionnaire. This was important as it added to the professional look of the questionnaire but also encouraged response as the coloured paper would be evident in a pile of white papers. Finally, messages at the beginning and end of the questionnaire were used to reconfirm the purpose behind the questionnaire and stress the confidentiality aspect, give an indication of the time it may take to complete the questionnaire and thank respondents in advance for their time and effort.

#### **5.10.2.5 Focus Group**

A focus group provides one method of obtaining qualitative data, in the form of group discussions exploring specific issues, and it generates data from group discussion rather than addressing specific questions to specific group members (Kitzinger and Barbour, 1999). Focus group could be employed to assist with the designing of questionnaires, by providing broad feedback about key issues which should be examined to the phrasing of specific questions (Kitzinger and Barbour, 1999).

Thus, a focus group was used in this study to provide feedback and suggestions concerning the initial form of the questionnaire. This was of particular importance due to the relatively new area investigated in this study: the items were collected from various sources and had previously been utilised to study these specific relationships, particularly in the area of performance measurement. As a result, it was valuable to gain input from focus group as to the appropriateness of the items, and to gain suggestions as to any helpful modifications which might be made.

A sample of seven PhD student at Liverpool Business School were asked in which a small number of subjects recruit other suitable subjects from amongst their acquaintances. The focus group procedure consisted of two main parts:

Section one involves a discussion of the general concepts of performance measurement and several contingent factors. It was designed to allow collection of first-hand information. The suggestions of the focus group allowed the development of the questionnaire. The focus group discussion was therefore very helpful in clarifying the concepts proposed in the theoretical framework from an operational



perspective. The final form of the questions was made some the modifications based on the focus group suggestions.

#### 5.10.2.6 Pilot Testing

Oppenheim, (1992) asserts that before distributing the questionnaire, it is essential to test and pilot the questions. The aim of this process is to improve the questionnaire so that respondents will have no problems in responding and answering all the questions. Moreover, the pilot allows the researchers to attain some evaluation of the questions' validity and reliability of data (Saunders et al. 2007). In addition, Sekaran, (2003) adds that pilot testing may involve a small number of respondents to test the suitability of the questions and their understanding. In a different context, Hussey and Hussey, (1997) claim that pilot testing may include friends, colleagues and people of different opinions.

Thus, this research took into account the above mentioned recommendations and carried out and tested the draft questionnaire to seven PhD students and five members of academic staff at Faculty of Business and Law at Liverpool John Moores University. All the students and members of academic staff provided many insightful comments relating to changes to the wording and scales of the questions. Moreover, the researcher's supervisor's comments were also taken into consideration.

For the pilot study, the questionnaire was sent to number of managers in Libyan banks which were chosen randomly, and they were asked to participate and complete the questionnaire. In addition, a special covering letter was prepared and mailed to the respondents. They were also asked to make any comments relating to unclear questions, and suggest questions that they thought would be useful for the research. Furthermore, the pilot study also provided the researcher with the opportunity to examine the coding system that has been used. As a result of the pilot process, 24 of the 60 questionnaires distributed were returned completed. The reason given for non-completion was the targeted person was no longer employed by the management. The questionnaire responses suggested that the respondents found the questionnaire easy to complete and understandable. Also, there was no evidence to indicate misunderstanding of the questionnaire items. In response to the comments received from the pilot process, many modifications were made to the questionnaire, but without exceeding the number of pages or deleting important



questions. In general, most of these modifications related to wording, layout and improvements in the clarity of the content.

#### **5.10.2.7 The Covering Letter**

Hussey and Hussey (1997) stress that attaching a covering letter which includes an explanatory paragraph with the questionnaire can explain the aim and context of the questionnaire. In addition, Saunders et al. (2007) propose some guidelines to clarify the purpose of the questionnaire by text an introductory statement accompanied by a covering letter. Therefore, in this study, a covering letter was designed in line with mentioned guidelines. The letter was carefully worded to make sure that the respondents understand the aim and importance of the study. The letter was printed on a single official letterhead page of Liverpool John Moores University. The first paragraph of the letter includes the aim of the study. The second paragraph emphasises the importance of the study to both banks and the researcher, and also gives the respondents the opportunity to obtain a copy of the report of the research conclusion. The third paragraph confirms to the respondents that all the information would be used only for academic purposes and would be treated as strictly confidential. The last paragraph in covering latter provides information about the supervisor and the researcher.

#### **5.10.2.8 Outline of the Questionnaire**

The final draft of the questionnaire (see Appendix A) was designed to include information on the performance measures, and emphasis on factors influencing their effective usage. The questionnaire consisted of eight pages, including the covering letter in the front. The questionnaire was divided into a four main sections as follows:

*Section one* was designed to obtain information about the respondents and their banks. So, it was divided into three parts. Part one (questions 1.1.1-1.1.4) asked the respondents to introduce personal detail like job title, qualifications ...etc. Part two (questions 1.2.1- 1.2.4) concerning information about the banks, whereas part three (question 1.3.1-1.3.5) asked the respondents about the current performance measurement practices/systems applied in their banks.

*Section two.* This section (questions 2.1- 2.30) was designed to identify which financial and non-financial performance measures were used, based on a 5-point



scale ranging from 1(strongly disagree) to 5 (strongly agree). These questions were adapted from (Vangneur, 1996; Van der Stede, 2001; Youssef, 2007).

**Section three.** This section (questions 3.1-3.5) was proposed to determine the extent to which performance measures are important drivers of bank's long-term success and the extent to which they used them for different decision purposes such as to evaluate managerial performance, identify problems and improve opportunities, and finally, information on how businesses are incorporating performance measures that can be directly linked to the strategies and whether their financial and non-financial performance measures were causally linked to each other. These questions were adapted from Intter, et al, (2003).

**Section four.** In this section (questions 4.1-4.28) efforts were made to capture the relationships between different contingent variables and the use of different performance measures. The scale used in this section was a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questions used in this section were adapted from previous studies in the field (Hoque et al. 2001; Vangneur, 1996; Van der Stede, 2001; El-Gendy, 2004; Youssef, 2007).

#### 5.10.2.9 Administering the questionnaire and response profile

The final draft of the questionnaire was mailed to about 345 participants in July, 2009; each questionnaire had a covering letter, and an envelope. The number of usable completed questionnaires was 121. A further 51 were returned uncompleted with reasons for non completion. After about four weeks, a reminder contact was made, as a result of this call, 26 were usable completed questionnaires and 14 were uncompleted without any specific reasons for lack of completion. On September, 2009 a second call was made to enhance the response rate. The respondents were asked to indicate if they were not prepared to participate in the survey to complete section one from the questionnaire. This information was collected in order to check for the non-response bias. As a result, another 29 responses were received including 16 usable questionnaires and 13 unusable questionnaires. Additional 18 questionnaires were collected during the interviews as will be explained in the next section. For the purpose of non response bias, 78 responses were received including information about the respondent and their banks.



Consequently, the total usable responses were 163 which represents 40.7% response rate. The response profile of the survey is shown in Table 5.6. According to Saunders et al. (2000), examination of recent business surveys reveals response rates as low as 15-20 per cent for postal surveys. Thus, this response rate is considered to be satisfactory as it is higher than response rates in other previous studies (e.g. Olson and Slater, 2002; Maiga and Jacobs, 2003; Maltz et al., 2003). Finally, a total of 116 respondents (%71) were interested in receiving a copy of the research findings. Thus, a copy of the preliminary findings were mailed to each respondent with a thank you letter.

Table 5.5 Response Profile

Response profile	Main survey	First contact	Second contact	Total
Usable questionnaire	121	26	16	163
Unusable	18	4	3	25
Partially completed	26	7	5	38
Refusal	7	3	5	15
Total	172	40	29	241
Rate of response				%40.7

5.10.2.10 Check for non-response bias

Wallace and Mellor, (1988) argue that questionnaires are capable of being substantially biased by the presence of a large percentage of respondents who are not able to return the questionnaire or those who partially fill in the questionnaire. Further, Hussey and Hussey, (1997) state that it is essential to consider the issue of non-response bias when collecting the questionnaire, which is often a basic issue because research design is contingent on generalising from the sample to the population under study. As non-response bias could affect the generalisation of the research results to the population, it was decided to check for non-response bias. In order to do that some methods were used in line with Wallace and Mellor (1988) for checking questionnaire non-response bias: the first method is a comparative analysis of responses by date of reply. This method requires that returned questionnaires bear the dates of completion, or questionnaires are coded as they are received. One method is to compare the completed questionnaires received from the main survey with those received from the follow-up contacts. The second method is a comparison of the profile of respondents against known characteristics of a sampled population. The last method is comparison of the characteristics (e.g. job title, type of qualification) of respondents with non-respondents from the sample.



Apart from various methods to check for non-response bias, the literature does not include much information about how to choose between these methods. The choice depends on the judgement and experience of the researcher (Wallace and Mellor, 1988). In an attempt to establish that the research respondents were representative of the group sampled, two alternative methods to compare non-respondents to respondents were employed in this research. The first method was used to compare early respondents (i.e. main survey) and late respondents (i.e. follow-up) in terms of job title of respondents (chief executive officer, senior managers, and branch managers). If the three groups differ significantly on these terms non-response bias is likely to exist. The second method is to compare the characteristics of respondents with non respondents from the sample. This information was obtained from the second follow-up contacts, and then Chi-square tests were used to determine if there was a significant difference between early and late respondents and between respondents and non-respondents. The results of these tests are reported in chapter six. The results indicated that there were no significant differences in the responses between these two groups ( $P\text{-value} > 0.05$ ). The results therefore suggest that the limitation of a non-response bias is unlikely to apply in this study.

### 5.10.3 Interview Administration

The main aim of conducting interviews is gathering additional data that could be used as another source of the explanation of the results of quantitative data (from questionnaires). The interviews were semi-structured interviews with a clear set of questions to be explored. Face to face semi-structured interviews were conducted with 18 managers, who were not able to fill in the questionnaire within the period July 2009 to September 2009. This method was used by many researchers, it includes a list of questions that supplemented with open-ended discussion to clarify issues or answer questions raised by both interviewee and interviewer (for example, see Cobb et al., 1995; Anderson and Lanen, 1999).

The questions were reviewed during the interview process to ensure that all the information was appropriately captured. The interview also allowed discussion of the strategy of the bank amongst other factors. Sekaran (2003) argues that an informed researcher who conducts interviews would be in a better position to clarify doubts and answer any inquiries the interviewees may have, thus, ensuring that the responses are properly understood and answered, which, in turn, minimises the non-



response rate of the study. Moreover, many ideas can also be brought to the surface during the interviews, in the other words, information can be supplemented with other data such as that obtained by observation during the interview (Kumar, 1999), in addition, the researcher can explain questions, answer any enquiries and clarify terms. However, it is still subject to respondent biases associated with survey and interview data, as well as it is time-consuming and expensive, and skills from the researcher are needed.

#### **5.10.3.1 Interviews Questions**

The same questions used for the questionnaires were used in interviews as a structured question list. At the beginning of each interview, the interviewee was required to complete the questionnaire. This enabled an additional 18 questionnaires to be included in the questionnaire survey. During interviews, all interviewees' enquiries were explained and answered. Interviewees were also asked if they would like to provide further information, comments, and suggestions relevant to the study, especially about research theme. It was anticipated that the questionnaire survey would elicit a low response rate, therefore, since a high response was desired, the researcher conducted semi-structured interviews to increase the response rate.

There are several advantages for conducting semi-structured interviews: such as allowance for triangulation to be carried out (Saunders et al., 2007; Anderson and Lanen, 1999), and to obtain more information and suggestions about subject area. Also, to increase the response rate by adding interview responses to postal responses. Finally, it is done to confirm the questionnaire's validity and reliability.

#### **5.10.3.2 The sample for semi-structured interviews**

The target sample was 18 interviews which were carried out in September 2009 to November 2009. This sample number was considered reasonable for interview purposes and banks were chosen to represent both size and type of Libyan banks.

The researcher contacted managers to seek their willingness to participate in the interviews. 18 managers agreed to participate in interviews, from among 60 initially contacted during the pilot study, a response rate of 30% (see Table 5.7). However, the remaining number prefers to participate by receiving the questionnaires instead of doing the interviews.



Table 5.6: Response rate for the semi-structured interviews

Number of calls	Agree to participate	Agreed to receive the questionnaire by post	Response rate
60	18	28	30%

A copy of the questionnaire for interview purposes was sent to interviewees one week in advance of the interview appointment. The researcher confirmed the interview a day before the appointment.

5.10.4 Archival research

The data from the questionnaire and interview were collected, then a matching exercise with the financial and contextual data included in the Central Bank of Libya database was conducted. The names of the banks that had completed the survey instrument were searched for through the database and the data relating to their bank performance, ownership structure, type of industry, and bank’s size were taken. These data were then added to the file containing the collected survey information on SPSS. In addition to this, annual reports from the year 2007-2008 were obtained from all the publicly quoted banks that had participated in the survey. The information included in the reports was compared to the data extracted from obtained data from research methods. This exercise gave confidence to the researcher about the reliability of the database. Furthermore, the information was contrasted with the one provided by the managers in the survey and interviews instruments. It was found that the information provided in the survey and interviews about the type of financial and non financial performance measures used matched the data that managers included in their systems. However, it was found that most banks avoid disclosing the nonfinancial information used for evaluating their performance. This finding verified the need for the data collection methods in order to gather this type of information.

5.11 Reliability and Validity Analysis

Oppenheim,(1992) states that validity refers to the degree to which an instrument measures what it is supposed or intended to measure, whereas reliability refers to how well the instrument of interest is measured. Also Sekaran, (2003) points out that it is significant for measuring the research variables to scan the accuracy and precision of the device used. Thus, validity and reliability measurements were ascertained to make sure that the measures are reasonably good.



### 5.11.1 Validity

Pallant (2007), Hair et al., (2003), and Sekaran, (2003) recognize that scale validity tests could be described into three types: Firstly, criterion validity concerns the relationship between scale scores and some specified, measurable criterion (Hair et al., 2003). There are two terms of criterion validity that can be carried out. The former is concurrent validity, which refers to the extent to which a measurement scale relates to other well-validated measures of the same topic Oppenheim, (1992). It is established when the results obtained from the scales are consistent with the results of other scales that are used to measure the same object (Oppenheim, 1992). The latter is predictive validity, which refers to the ability of the measuring instrument to differentiate among individuals with reference to a future criterion (Sekaran, 2003).

Secondly content validity refers to the adequacy with which a measure or scale has sampled from the intended universe or domain of content. In other words, how well the indicators measure the different aspects of the concept (Sekaran, 2003). Content validity can be determined by a careful definition of the research topic, and the items included in the measurement scale (Cooper and Schindler, 2001). In addition, a group of experts can comment and judge on the suitability of the questionnaire, as well as allowing suggestions to be made to the structure of the questionnaire (Saunders et al., 2007). In this study, several efforts were made to meet content validity. For example, the purpose of the study was identified through an extensive literature review. Also, many questions and scales were used from previous studies. And the questionnaire was pre-tested by members of staff, doctoral students and a panel of academic researchers. Furthermore, a pilot study was undertaken to ensure that respondents have had no problems answering questions. Thirdly, construct validity involves testing a scale, not against a single criterion, but in terms of theoretically derived hypotheses concerning the nature of the underlying variable or construct. It refers to how well the results obtained from the measurement scale fit the theories around which the test is designed (Sekaran, 2003). Pre-testing the questionnaire in order to get feedback can assess this type of validity. As mentioned earlier, this study has carried out a number of pre-testing stages and pilot work to enhance construct validity.



Pallant (2007) states that construct validity is explored by investigating its relationship with other constructs; both related (convergent validity) and unrelated (discriminant validity). Peters (2002) argues that if constructs are valid in this sense, one could expect relatively high correlations between measures of the same construct using different methods, which is known as convergent validity, and low correlations between measures of constructs that are expected to differ, which is known as discriminant validity.

Construct validity could be assessed through techniques such as factor analysis. Hair et al., (2003) state that factor analysis attempts to identify underlying variables (factors) that explain the pattern of correlations within a set of variables. He states that construct validity could be demonstrated using content analysis, correlation coefficients and factor analysis. In addition, Huck and Cormier (1996) argue that convergent validity refers to whether the items comprising a scale behave as if they are measuring a common underlying construct. If so, items that measure the same construct should correlate highly with one another. On the other hand, discriminant validity is concerned with the ability of a measurement item to differentiate between concepts being measured. Therefore, as Peters (2002) explained that the test for discriminant validity is that an item should correlate more highly with items intended to measure the same trait than with any other item used to measure a different trait. This will be shown in the principal components factor analysis results in the next chapter (Chapter Seven), which should reflect that measures of constructs correlate more highly with their own items than with measures of other constructs being measured. It was found that the regression analysis is suitable for the defined constructs as shown in many previous studies in this field (for example; Jarley and Fiorito, 1997; Fullerton and McWatters, 2002; Davila, 2005 amongst many others), who support the construct validity of the survey instrument. Moreover, Abernethy et al., (1999) state that there are three types of validity; namely, construct, internal and external validity. The construct validity defined as the extent to which the constructs of theoretical interest are successfully operationalised in the research. They add that this definition incorporates both the extent to which the constructs are measured reliably and also whether the measures used capture the construct of interest. In terms of internal validity, they state that it refers to the extent to which the research design permits the study to reach causal conclusions about the effect of the independent variable on the dependent variable.



Finally, they defined the external validity by saying it requires the researcher to establish whether the results can be generalised from the research sample and setting to the wider population, settings or times. This last definition of validity will be used here in this research and will be discussed in the following chapter.

### **5.11.2 Reliability**

The reliability of a measure refers to the extent to which it is without bias (error free) and hence ensures consistent measurement across time and across the various items in the instrument (Sekaran, 2003). The reliability of a measure is an indication about the stability and consistency of a measure over time (Easterby-Smith, 2007). According to Sekaran (2003), test-retest reliability and parallel-form reliability are two tests of stability of measures and inter-item consistency reliability and split-half reliability are two tests of internal consistency of measures. In this study, the Cronbach Alpha measure of internal consistency was used to assess the overall reliability of the measurement scale. This measure is the most frequently used method for calculating internal consistency (Saunders et al., 2007). The recommended minimum acceptable level of reliability for Cronbach alpha is using Hair et al. (2003) criterion. They agreed that an alpha coefficient of an average between 0.50 - 0.70 is a moderate and acceptable level for social research. The alpha coefficients will be calculated in Chapter Seven after using factor analysis for both dependent and independent constructs that determines how many variables of each type are extracted, then alpha coefficients will be calculated for each construct measuring a specific variable. The results show that all the variables passed the test and the achieved values exceeded the recommended value of this test.

## **5.12 Empirical Analysis**

### **5.12.1 Parametric and Non-parametric Statistics**

Field (2000), and Pallant (2007) argue that in many cases, parametric statistics are more strict, more powerful than non parametric, and there are several assumptions that the data should be achieved to apply parametric statistics. If these assumptions are achieved, parametric statistics could be used and vice versa, these assumptions are as follows:

- The scale of measurement reached on the gathered data ought to be in the type of interval or ratio scaling, because, in contrast, non-parametric techniques are



perfect for use when the data measured is on nominal (categorical) and ordinal (ranked) scales.

- The underlying distribution of scores in the population from which the sample has been randomly drawn is approximately normal.
- The variances of variables are equal or homogenous. As Berenson and Levine (1992) explain that for situations regarding central tendency for which two variables have been drawn, that they be drawn from normal populations having equal variances, so that any differences between the populations will be in central tendency.

For many of the commonly used parametric techniques there is a corresponding non-parametric alternative. On the other hand, Pallant, (2007) argues that non-parametric techniques tend to be not as powerful as parametric techniques, because they may be less sensitive in detecting a relationship, or a difference among groups. For this research, it could be argued that parametric techniques are employed for the following reasons:

- Although the scale of measurement is ordinal, it was argued that the Likert scale could be treated as interval data without any serious damage. As Peters (2002) states that the data, which is often collected in surveys employing the Likert scale, may be utilized for statistical analysis as if it was true interval scale data.
- By checking the histograms of the residuals of the data, it was clearly noted that all points are lying in a reasonably straight diagonal line from bottom left to top right. That means that there are no major deviations from normality.
- Normal distributions and equality of variances of different variables are supposed in testing for the difference between the means of different variables. Conversely, the consequences of departures from these assumptions on parametric tests (i.e. t-test) are very limited. Berenson and Levine (1992) state that parametric tests are powerful as long as the sample sizes are not extremely small being more than 30 cases, the supposition of normality can be violated without serious effect on the power of the test. However, for equality of variances, if it is unwilling to assume equal population variances or they are not equal, some modifications should be taken into consideration. This point will be explained explicitly in the next chapter, which discusses the research analysis.



In conclusion, many statistical authors state that the most of the parametric techniques are fairly powerful, particularly, if the research has a good sized sample ( $> 30$ ), which will tolerate minor violations of assumptions ( see for example, Pallant 2001).

### 5.12.2 The Scale of Measurement

It is worth noting that that the investigation of any phenomenon should comprise variables that are measurable, that means, these variables can be placed at several points along a continuum against which numerals might be assigned based on certain rules (Berenson and Levine, 1992, and Cohen and Holliday, 1996). Visser, and de Nijs, (2006) conclude that the level of measurement can be classified into four categories, which are as follows:

Firstly: The nominal scale is the most elementary scale; it does no more than identify the categories into which cases may be classified. Those categories have to be mutually exclusive and no ordering is implied. Secondly: The ordinal scale incorporates the classifying and labelling function of the nominal type, but in addition, it brings to it a sense of order, means that one category is said to possess more of a particular characteristic being scaled than does another category. The ordering, in such type of scales, implies only which category is greater than another category but it does not assume that the intervals between the numbers are equal. Thirdly: The interval scale is ranking the data in addition it allows us to state how far apart are different categories. In other words, the difference between measurements is a meaningful quantity. Nevertheless, it has no absolute zero point. Finally, The ratio scale is the highest level of measurement, because differences being meaningful and equal at all points on a scale and there is a true zero point.

In this study, data collected is ordinal data that allows the researcher to rank the data in some order, as the Likert scale was used in the questionnaire that is at first designed to obtain respondents' opinions. However, the researcher could not argue that such type of scales allow him to count exactly the difference between ranks. Bryman and Cramer (2001) indicate that variables derive from multiplex-item scales (such as Likert scales) are ordinal data not interval. They also argue that treating these variables as ordinal variables will prevent researchers from using powerful statistical tools such as correlation and regression analysis. However, Bryman and Cramer (2001) recommend that it is for the research's benefit to cope with these



variables as interval ones. Therefore, these Likert scale data, which are frequently gathered in surveys, may be utilized for statistical analysis as if they were true interval scale data. Furthermore, Peters (2002) suggests such treatment for the ordinal data for the ease of data collection from respondents and ease of use by the researcher; as a result, the researcher could suppose equality of perceptual distance on the part of respondents between ranks on the scale. Finally, Labovitz (1970) advises that most ordinal variables could be treated as interval variables; but, the amount of error that can occur is minor compared with the considerable advantages from using the powerful statistical techniques.

### **5.13 Statistical Analysis Methods**

The next chapters will illustrate the findings of the statistical analysis of the data collected in this study mainly through the questionnaire survey and the interviews of performance measurement within Libyan banks. This section deals with the types of statistical tests used in this study and reasons for the use of these particular tests.

Siegel and Castellan (1988) indicate that parametric statistical tests are suitable when measurement on an interval or ratio scale has been achieved and the population is normally distributed, and sample size which is recommended to be more than 30 cases (Zikmund, 2003). Furthermore, according to Zikmund (2003), the selection of the method of statistical analysis rely on several conditions, for example, type of question to be answered, number of variables, scale of measurement.

In general, there are two fundamental types of statistical analysis: descriptive and inferential statistics. Descriptive statistical analyses are those that sum up responses such as frequency distributions, averages, and standard deviations. In contrast, inferential statistics are those that allow to find out whether there are significant differences among the sample (i.e. tests of significance/comparison of means independent t-Test, One Way ANOVA). Finally, association analysis would be followed to assist in improving our understanding of the investigated phenomenon.

#### **5.13.1 Descriptive Statistics**

Hussey and Hussey, (1997) argue that descriptive statistical methods are concerned with describing, presenting and summarising data. Therefore, it is used to describe the current situation of the Libyan banks and to provide some answers concerning types of performance measures applied by these banks descriptive statistics are used



to organise, summarise, and describe measures of a sample. The most familiar form of such analysis is the calculation of averages, frequency distributions, percentage distribution and means were used earlier to describe the characteristics of the responding firms and the individual respondents. In addition, frequencies, means and mean differences are used to interpret the outputs from the descriptive statistics. For example, frequencies and means are used in ranking the extent of use of performance measures. Moreover, the means are also used to describe the types of financial and non-financial performance measurements according to their importance in performance measurement and evaluation purposes. Descriptive statistics provide an indication about the shape of the sample distribution which helps in deciding the appropriate analytical statistical method that may be used to test the research hypotheses.

#### **5.13.2 Independent t-Test and One Way ANOVA statistic**

These tests are used to test hypotheses about a population mean for small samples and when the standard deviation of the population is unknown. Levine, et al, (1999) claim that it has been found in practice that as long as the sample size is not very small and the population is not very skewed, the t-distribution gives a good approximation to the sampling distribution of the mean. Since the second objective to determine the difference (if any) in the range of performance measures used in Libyan banks as a whole and according to different categories of banks by comparing the practices used between all sub-groups in each category, it would seem to be appropriate to examine this hypothesis by using independent t-test and one way ANOVA statistics for comparing two means.

#### **5.13.3 Exploratory Factor Analysis**

The first analytical method is the exploratory factor analysis that will determine the number of dependent and independent variables that build the model of study. Exploratory Factor analysis is a statistical method that has a number of different uses. The primary purpose of factor analysis is data reduction and summarization. It is concerned with the reduction of a set of observable variables in terms of a small number of latent factors. It takes a large set of variables or scale items and looking for the commonalities among them so that the data could be decreased to a smaller set of factors. Thus, the smaller number of variables or scale items is more



manageable because factor analysis is seeking the items that are strongly related (have relatively moderate-to-high correlation). Furthermore, Pallant, (200) and Peters, (2002) argue that factor analysis has been employed to appraise the construct validity of a test or a scale. The researcher utilizes factor analysis for analyzing relationships among a number of survey items or test scores. It is applied to investigate interrelationships among a large number of variables and to clarify these variables in terms of their common underlying factors. Therefore, by using factor analysis, a large number of statements can be refined and reduced to form smaller number of coherent subscales (Pallant, 2001).

With regard to the use of the factors analysis technique in this study, chapter seven will gave more specific details about the principles for adopting this approach.

Thus, composite factors gains in the factor analysis would be comprised in correlation and regression analysis. Factor analysis tries to simplify the correlation matrix by accounting for a large number of relationships with a smaller number of factors.

#### **5.13.4 Correlation Analysis**

One of the aims of this study is to establish the impact of individual contextual factors on the use of performance measures. Correlation analysis was deemed the most appropriate method to achieve this aim as correlation analysis tests whether a relationship exists between two variables (Field, 2005).

There is support in the management accounting literature for the use of correlation analysis in establishing the association between variables (e. g. Intter and Lacker 2003) and therefore, this research is not diverging from norms set in the field.

However, before embarking on testing the relationships between the dependent and independent study variables, it was important to establish if there was an overall difference in between small and large banks. For the purposes of this study, the classification that will be used for these two groups. Correlation analysis involves initially setting up compound variables in SPSS in order to enable the testing of the association between two variables.

Appropriately labelled compound variables were set up in SPSS for the six contingent variables and these were then tested against the performance measurement items. The resulting correlation coefficients (r values) indicate the strength of association between each contingent variables and the use of



performance measurements for each of the two groups (small and large banks). The results for these tests are presented in chapter eight.

#### **5.13.5 Regression Analysis**

The final step in the analysis procedures was to use the data to predict the impact of specific contingent variables on the use of performance measurements. This would allow the prediction of which variables have most impact on the use of performance measurements in the two groups of banks. The most suitable method of establishing this relationship is through using regression analysis. Regression is based on correlation but allows a more sophisticated exploration of the interrelationships among a set of variables (Pallant, 2007).

Regression analysis is method that can be use in several ways but the choice of which way to use is governed by the type of research being conducted and the results sought (Field, 2005). Field, (2005) reports that there are multiple ways of of use regression analysis for example: 1) regression analysis can used to give additional description of the relationships among variables. 2) Regression analysis might applied when the choice of predictors can be based on previous studies and therefore the predictors are entered on the basis of their importance. 3) Regression analysis can be used purely based on their mathematical impact on the outcome variable. For the purposes of this research and given the lack of previous empirical research which assigns priority and importance to the identified variables, this study takes regression analysis to provide additional description of the relationships between the contextual of establishing a robust model of predictors of the use of performance measures. In other words, multiple regression analysis will be conducted for the purpose of additional description of the relationships among dependent and independent variables rather than for the purpose of prediction. It is mainly used to explore the relationship between one dependent variable (performance measures) and a number of independent variables (factors). This analysis will be repeated as many dependent factors as the researcher has in two groups, i. e. the small and large sized banks.

#### **5.13.6 Normality of Study Variables**

The normality is checked using the skewness and kurtosis values of each variable. In line with Hair et al. (2003), Pallant (2001) defines the skewness as value that



provides an indication of the symmetry of the distribution, while kurtosis provides information about the peakedness of the distribution. Acceptable range for normality using skewness and kurtosis values should be within the range of -1 to +1, and within -3 to +3 respectively. That means if the distribution is perfectly normal, skewness and kurtosis value are equal or near of zero, which is very uncommon in the social sciences. The normality test will explain in depth in chapter seven.

#### **5.13.7 Multicollinearity**

It is recommended that the multicollinearity problem should be examined before conducting the regression analysis (See, Firth, 1996; Laitinen, 2001). Hair et al., (2003), and Field, (2005) argue that the multicollinearity problem takes place when two or more independent variables have significant correlation with each other in the regression model. This problem leads to the power of regression model to determine the contribution of each independent variable in expectation of dependent variable will be minimised. Therefore this study calculates multicollinearity of research variables in chapter eight.

### **5.14 Study Variables**

#### **5.14.1 Dependent Variables**

In this study, the dependent variables which represent performance measures represent five types, which signify the most common types of performance measures in Balanced Scorecard. These measures are the financial measures; the customer measures; the learning and innovation measures; the internal business process measures and the community measures. In order to clarify the ambiguity around the main first study question, which aims to identify the performance measures employed in different Libyan banks, the banks would be classified as applying or not applying a certain type of performance measures according to the average of the answers of the items the constructing performance measure. In addition, the study used the exploratory factor analysis to determine performance measures factors as they are perceived by respondents. This should identify the prevailing measures in the Libyan banks. The following sections provide the principle for each mentioned dependent variable in this study:



- **Financial measures:** they are the most traditional and still most commonly used measurement tools. Financial measures are valuable in conveying the readily measurable economic consequences of action already taken. Financial measures are typically focused on profitability, return on investment (the basis on which shareholders, in turn, typically gauge the success of their investment) such as return on capital, return on equity, return on sales, ..etc (Kaplan and Norton. 1992; Lipe et al., 2000).
- **Customer measures:** These kinds of measures typically include several core or general measures derived from the desired successful outcomes of a well-formulated and implemented strategy. These core measures may include overall indicators such as customer satisfaction, customer complaints, customers lost/won ...etc. (Kaplan and Norton 1997, 1998, Light, 1998). Measures related to customers include results from customer survey, and customer profitability.
- **Internal business process measures:** in this perspective measures relate specifically to operational processes of business unit. These measures represent the view of operations management, which is typically based on the objective of most efficiently and effectively producing product or services that meet customer needs. For example, such measures may include order conversion rate, on-time delivery from suppliers, employees' satisfaction, cost of non-conformance, and lead-time reduction (Kaplan and Norton. 1996).
- **Learning and growth measures:** these measures represent the employees as part of performance measures used. This perspective is all about developing the capabilities and processes needed for the future. In the banks, for example, for a business to succeed not only must it effectively carry out daily transactions but it must also continually improve in terms of the value and cost of its offering. This innovation process can be measured in a variety of ways. These may include the speed of transactions, or the number of people involved in particular transaction...etc. again, the choice depends on what is critical for success of each particular business (Kaplan et al, 1996). Examples for these measures ability to create new idea, identifying new markets, employees' capability, and employees motivation, and empowerment.
- **Community measures:** the above four measures perspective were adopted from the balanced scorecard framework, as this framework is facing some criticisms



such as, Norreklit (2003) argues that the framework do not take into account of all of an organization's stakeholders, that it does not take into account competitive actions, development in technology, and any unexpected event, which makes it static rather than dynamic and thus fails to establish a basis for continuous improvement. This would be especially hazardous in environments classified as uncertain where is a clear need for organisations to be flexible in meeting unexpected demands (Norreklit, 2003). Taking the Libyan environment into account which is still dominated by the Libya's leader ideas which focuses on a socialist society, so the banking sector is required in many ways to perform a social role. So this study uniquely tries to develop measures for social or community performance in the banking sector of Libya, using some new measures like public responsibility, community issues.

The main justification for these particular measures as dependent variables come from two views: firstly, the first four measures were adopted in response to recommendations made by Kaplan and Norton (1992), (1996) to implement the balanced scorecard framework in order to communicate and implement a new retail strategy in face of declining margin and increasing competition (Kaplan and Klein 1996). However, the last measure is to avoid one of extensive criticism for balanced scorecard framework which was made by Norreklit, (2003). This study accepts Norreklit, (2003)'s idea by using community measures in order to provide more flexible framework.

#### 5.14.2 Independent Variables

From the extensive literature, seven independent variables could be adopted to investigate and identify their likely influence on the use of the performance measures in the Libyan banks. Exploratory factor analysis utilised also to identify the appropriate variables from these contingent variables based on respondents' beliefs and opinions. The following is a brief summary of each of these contingent variables as suggested from a broad array of literature.

**Business strategy:** the managerial accounting literature generally takes strategy as given and examines the association between strategic choices and the organisation's accounting and control system design. Many studies typically measure strategy as a continuum between firms following a defender strategy and



organisations following a prospector strategy (Miles and Snow, 1978). As defined in the strategy literature, a defender strategy focuses on being the low cost producer of a narrow product range, while a prospector strategy focuses on being first-to market with a variety of innovative products or services (e.g., Miles and Snow, 1978; Porter, 1985). Therefore, business strategy has been identified as relevant to explain cross-sectional variation in the design of management control systems (Langfield-Smith, 1997).

**Organisational structure:** There is evidence to suggest that the structure of the organisation affects the manner in which performance measurement technique is best used, therefore, it is identified as one of the important variables (Hopwood, 1972; and Otley, 1980). Organisational structure can be defined broadly as the ways in which firms organize resources to achieve some end. Management accounting can then be viewed as the information support system that best facilitates communication, motivation and performance evaluation within a variety of organisational structures. Therefore, different performance measures should be adaptable to both centralized (to support coordination of decision-making activities) and decentralized organisational structures (to provide relevant information for decision making) (Atkinson et al., 1997).

**Competition:** The reason for selecting competition is that it has been shown that there is an effect related to the type of competition faced by a firm on its use of management controls and concluded that the sophistication of accounting and control systems was influenced by the intensity of the competition it faced. Such as Simons (1990) states that the increase of competition leads to increased use of management control processes. This relationship was different power depended on the type of competition (product competition, marketing competition and price competition).

**Technology:** This variable is concerned with the internal operations of the organisation; that is, the means that the organisation uses to convert inputs into outputs. Therefore, it was defined as the distinction between different types of production technique (e.g. unit production, small batch, large batch, mass production and process production). As mentioned in the literature technology is a key factor in the use of knowledge in reducing the production or service costs.



It is one of the factors which affects the design of an appropriate management information system (Otley, 1980).

**The adoption of total quality management:** this technique as an advanced management practice is described by Chenhall (1993) as being management philosophies reflected in practices that enhance the process with respect to a customer focus. Some studies have examined the relationship between total quality management and the use of performance measures (non financial measures) (Perera et al., 1997). Chenhall (1997) states that the relation between total quality management and an organisation's performance is stronger if non financial measures are used as an essential part of evaluation systems. The adoption of total quality management was a main driver of the development of the use of non financial performance measures (Ittner and Larcker, 1998).

**Environmental uncertainty:** In order to survive in the changing business environment, management can adapt to this uncertainty by adopting flexible strategies, structures and systems (including performance measures). Lynch and Cross (1991) and Hussain and Hoque (2002) conclude that the uncertainty of economic conditions drove managers to use financial measures to a greater extent than non financial measures. Conversely, many management accounting researchers have found financial measures to be insufficient in the uncertain, complex and competitive economic environment of today (Kaplan, 1984; Govindarajan and Shank, 1992). Chenhall and Morris (1986), and Hoque (2001) confirmed in their studies that high levels of uncertainty drove managers to rely heavily on non financial measures because they will help management to consider the effects of uncertainty and act accordingly. Kaplan and Norton (1996) propose that under environmental uncertainty, an organisation must be able to anticipate customers' future needs and expectations and an organisation requires new capabilities for organisational success and managers must have the ability to understand their uncertain environments and to cope with varying degrees of uncertainty.

**Organisational size:** many authors claim that organisational size has a strong impact on the factors that affect the use of performance measures. For example, large firms, due to their big size, have to consider more factors when using performance measures than smaller firms (Fisher, 1998).



### **5.15 Summary**

This chapter tried to address the methodology and methods that are adopted in this research. In the early sections of the chapter, the underlying philosophical and methodological approaches of the study were thoroughly discussed. A review of the principal theoretical and philosophical assumptions provided a very useful bridge between two major and related areas; namely, contingency theory and management accounting (Burrell and Morgan, 1979). Moreover, in this chapter an empirical research study was conducted using mainly the determinant of study sample and the questionnaire as research methods and several personal interviews to support and supplement the information derived there from and shed light on issues arising from questionnaire responses. In addition, some statistical techniques have been raised to analyze the interval data collected.

Descriptive statistical analysis, comparison of means tests, correlation and multi regression analyses will all be used in this study to provide reasonable and acceptable results. The research methodology, including statistical tests, is in line with the methodological approach adopted in previous similar studies reviewed in chapters three and four. The following chapters will present the first part of the analysis, namely, descriptive statistical analysis. The results provided in chapter six mainly fulfill some study objectives mentioned in chapter one.



## **CHAPTER SIX**

### **PERFORMANCE MEASURES IN DIFFERENT LIBYAN BANKS**

#### **CATEGORIES: DESCRIPTIVE ANALYSIS FINDINGS**



## 6.1 Introduction

This chapter aims to discuss the results of the quantitative data gathered by questionnaires. It aims also to highlight the statistical analysis of the collected data in order to underline the objectives that this study is trying to achieve. To attain the aim of this chapter, it is divided into four sections: The first section presents general information about Libyan banking and background information of the participants. The second section provides the findings of the descriptive analysis of the data collected regarding performance measurement systems used in surveyed banks. The third section deals with the results of descriptive and inferential analysis of the data that are related to views of participants regarding the importance of the use of diverse performance measures. This is followed by a survey of performance measures' usage in the Libyan banks which is analysed in the fourth section. Finally, a summary of the main results is given in the fifth section.

## 6.2 General Background

### 6.2.1 General Background about Responding Banks

The literature proposes that large organisations utilize a greater range of management accounting practices (including for example performance measures) than small ones (See for instance, Hoque and James, 2000; Szychta, 2002). In line with (Szychta, 2002), sampled banks were classified into different categories, (1) The size of the bank in which the banks can be split into two sub-groups which are small and large sub-groups based on the total of assets, banks with less than 100 million LD are classified as small whereas banks with 100 million LD or more are classified as large. This is to investigate the relationship between the size of bank measured by total of assets and accounting information systems. (2) the type of activity/business category which divides banks into commercial and specialised sub-groups banks, with the purpose of examining the argument that the type of industry/business may influence an organisation to apply management accounting practices that differ from other organisations. (See for example, Scapens, et al, 2003). (3) The type of ownership category, which classifies surveyed banks into two sub-groups -state-owned and private sub-groups. This classification aims to investigate the impact of bank's ownership on the choice and the use of performance measures. (4) Likewise, Miles and Snow (1979) identify three types of business strategies which may be adopted by organisations. These are defender, prospector,



and analyser strategies. This classification is to find out the influence of the type of business strategy orientation in the use of performance measures. The data in this section relates to Libyan banks represented by the sample of this study, which could be divided into two main parts as follows:

6.2.1.1 Descriptive analysis tests

6.2.1.1.1 Type of Business

Respondents were asked to classify the type of activity/business in their banks by being presented with two sub-groups, which are carefully selected to represent the type of business for the Libyan banks <sup>1</sup>. Table 6.1 shows the type of businesses and their frequencies. The table shows that the majority of respondents' banks were from commercial sub-group banks at about 77 per cent (124) whereas only about 23 per cent (39) were from specialized sub-group banks.

Table 6-1 type of business classification

Type of Business	Frequency	Valid Percent
Commercial	124	76.9
Specialized	39	23.1
Total	163	100

6.2.1.1.2 The Type of Ownership

Respondents were asked to identify the type of ownership of their banks and select one of two sub-groups, which are public and private banking sub-groups. Table 6.2 shows the type of ownerships and their frequencies. It also indicates that 45.6 per cent (74) of respondents' banks are public sub-group banks, on the other hand, private sub-group banks are 54.4 per cent (89).

Table 6-2 type of ownership

Type of ownership	Frequency	Valid Percent
Public	74	45.6
Private	89	54.6
Total	163	100

5- The two business sub-groups were selected carefully after consulting experts (Dr. Khalid A. Kagigi, the Dean of Internal Auditing Department Director of the Central Bank of Libya ) in the Libyan banks during the first field visit (i. e. to conduct unstructured interviews) to Libya. Also, written materials (e. g. annual reports, booklets, and leaflets from the Central Bank of Libya) about the banking sector in Libya were useful and assisted in this classification.



6.2.1.1.3 The Total of Assets

Table 6-3 shows that about 39 per cent (64) of responding banks had less than 100 million Libyan dinar (LD) as total of assets. By contrast, 27.6 per cent (45) of banks have between 100 to 500 LD million as total assets, it also shows that with more than 33.1 per cent (54) have in excess of 500 LD million assets.

Table 6-3 size of bank

	Total of Assets (LD)	Frequency	Valid Percent
Small	100 Million<	64	39.3
Large	100-500 Million	45	27.6
	500 Million>	54	33.1
	Total	163	100.0

6.2.1.1.4 The Type of Business Strategy

Miles and Snow (1979) argue that it is essential to identify strategic choices, when the relationship between contextual factors (*i.e deregulation change, strategic choice*) and performance have been examined. The participants were asked whether Libyan banks adopt defender strategies in reference to defender strategies, prospector strategies in order to compete in the new market place, or analyser which adopt a mix between the above strategies. Table 6-4 presents the result of this part, which asked respondents to choose which paragraph best represented the strategy of their banks. Of all respondents, 27 per cent (44) classified their banks as prospector sub-group banks, about 45 per cent (74) of respondents classified their banks as analyzer sub-group, and 27 per cent (45) as defender sub-group.

Table 6-4 type of business strategy

The type of strategic orientation	Frequency	Valid Percent
Prospector	44	27
Analyzer	74	45.4
Defender	45	27.6
Total	163	100.0

6.2.1.2 Chi Square for banks classifications

Following the descriptive analysis, and in order to test whether there are significant relationships between the different banks classifications, Chi-square statistics were prepared. Table 6-5 reveals the result of the Chi Square test. Table 6-5 shows that there are significant relationships between all categories, these relationships would seem to be attributable to the fact that most Libyan banks categories are dependent



on each other. For example the relationship between the type of business and type of ownership categories is significant, this result would seem to be attributable to the fact that the majority of commercial banks are public (state-owned). In addition, the type of business category is related to the size of bank category.

**Table (6-5) Chi Square Test<sup>2</sup>**

Classifications of Libyan banks		Chi-Square Tests		Result of Chi- square test
A	B	Value	Sig.	
TSBCAT	TOWCAT	61.658	.000	* Sign
TSBCAT	SIZCAT	64.795	.000	* Sign
TSBCAT	TOSTRCAT	58.835	.000	* Sign
TOWCAT	SIZCAT	80.452	.000	* Sign
TOWCAT	TOSTRCAT	87.095	.000	* Sign
TOSTRCAT	SIZCAT	53.979	.000	* Sign

TSBCAT = Type of Business category, TOWCAT = type of ownership category, SIZCAT = size of banks category, TOSTRCAT = Type of strategic orientation category. \* Sign = The relationship between classifications is significant

### 6.2.1.3 Information about Respondents

In order to increase the level of accuracy and certify that the questionnaire was filled in by the right person, demographic data related to those who filled in the questionnaire are shown in two tables 6-6 and 6-7. The former shows participants' details like job position, academic qualifications, field of study and period of experience while the latter has grouped the respondents' characteristics based on the sub-groups within the aforementioned banking categories. This data will be presented as descriptive analysis results in this section. It has also been used to confirm the reliability of the study's data. The table 6-6 shows that the participants occupations are in the top and middle managerial levels in Libyan banking sectors: branch manager 60 per cent; and senior manager, 28.8 per cent and only 11 per cent are chief executive officers, whereas it could be noted from the table 6-7 that the number of participants who are the branch managers is higher than senior manager

<sup>2</sup> The sample of the study is classified into four categories, each category includes sub-groups which are used to compare the sub-groups in each category to achieve some study objectives. The first category grouped the sample into three sub-groups (prospector, analyzer, and defender sub-groups banks) according to the type of business strategy adoption, which will be coded as TOSTRCAT. The second category divided the sample into two groups (commercial, specialized sub-groups banks) according to the type of business/activities, that coded TSBCAT. The final category grouped the sample into two sub-groups (small and non large sub-groups banks) according to the total of assets, which are coded by SIZCAT. The third category grouped the sample into two sub-groups (Public and private sub-groups banks) according to the type of ownership, which coded by TOWCAT. Therefore, these categories will be used in the following sections to compare between sub-groups within each category.



and chief executive officers in all sub-groups<sup>3</sup>. This indicates that responses from middle managerial level are higher than top managerial level responses.

**Table 6-6: Job Position, Qualifications, Field of Study and Experience of Participants**

<i>Job position</i>	BM		SM		CEO
Number (%)	98 (60.2)		47 (28.8)		18 (11)
<i>Academic qualification</i>	UUD		UD		P
Number (%)	27 (16.6)		107 (65.6)		29 (17.8)
<i>Field of study</i>	A	BA		F	Other
Number (%)	75(46.0)	41 (25.2)		33 (20.2)	14 (8.6)
<i>Years of experience</i>	< 5years	6-10years		11-15years	> 20years
Number (%)	13 (8.0)	33 (20.2)		53 (32.5)	64 (39.3)

**Table 6-7 Classification of the Participants Based on Their Demographic Data within All Sub-Groups of Four Banking Categories**

<b>Characteristics</b>		<b>TOSTRCAT</b>			<b>TSBCAT</b>		<b>SIZCAT</b>		<b>TOWCAT</b>	
		<b>PRO</b>	<b>ANA</b>	<b>DEF</b>	<b>COM</b>	<b>SPE</b>	<b>SB</b>	<b>LB</b>	<b>PRI</b>	<b>PUB</b>
<i>Job position</i>	<b>SM</b>	16	20	11	35	12	20	27	28	19
	<b>BM</b>	26	44	28	76	22	45	53	54	44
	<b>CEO</b>	2	10	6	13	5	9	9	9	9
<i>Academic qualification</i>	<b>UUD</b>	7	14	6	20	7	15	12	13	14
	<b>UD</b>	30	47	30	79	28	48	59	60	47
	<b>P</b>	7	13	9	25	4	11	18	18	11
<i>Field of study</i>	<b>A</b>	17	9	12	51	24	38	37	36	39
	<b>BA</b>	38	19	14	34	7	19	22	24	17
	<b>F</b>	20	13	7	30	3	11	22	23	10
<i>Years of experience</i>	<b>&lt; 5years</b>	0	9	4	8	5	12	1	4	9
	<b>6-10years</b>	8	13	12	23	10	20	13	15	18
	<b>11-15years</b>	17	20	16	37	16	22	31	29	24
	<b>&gt; 20years</b>	19	32	13	56	8	20	44	43	21

BM = Branch Manager, SM = Senior Manager, CEO= Chief Executive Officer, UUD= Below University degree, UD= University Degree, P= Postgraduate, A= Accounting, BA= Business administration, F= Finance. TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks.

With regard to the highest level of education, table 6-6 above shows that most of them, 65.6 per cent, have a university degree, 17.8 per cent have a postgraduate degree including Masters and PhD degree, and 16.6 per cent have high-school level qualifications below university degree level, while table 6-9 reveals that participants' qualifications from all sub-groups are similar as the majority of participants have an university degree and postgraduate degree, however, some have

<sup>3</sup> However, One Way ANOVA was undertaken to find out if there are difference among branch managers, seniors managers and chief executive officers in the types of opinions/answers' for the study them.. The result of One Way ANOVA shows that Levene's Tests are not significant (the value under "Sig." is greater than .05), that is mean that participants from branches managers, seniors managers and chief executive officers (Job position) are not significantly different regarding their answers.



below university level qualifications. This result suggests that about three quarters of participants have a high level of education who can comprehend and believe the importance of the topic of this study.

Concerning the area of study, table 6-6 demonstrates that about 71 per cent of participants' field of studies are in accounting (75) and business administration (41). In addition, approximately 20 per cent of them have specialised in finance, however, only 8 per cent of participants have specialised in another field of study.

With reference to post-qualification experience, as can be seen from table 6-6 about forty per cent of the participants have more than 20 year's post-qualification experience, about 32.5 per cent have work experience ranging from 11 to 15 years, approximately 20 per cent have 6 to 10 year's work experience and the remainder have less than 5 year's work experience. The same picture could be drawn from the table 6-9 that the majority of participants within all sub-groups have work experience extending from six years to more than twenty years. This finding illustrates that more than 90 per cent of participants have long work experience, this means that they are well placed to give a reasonable view.

**6.3 Performance Measurement Systems**

**6.3.1.1 Performance Measurement Techniques**

To identify the performance measurement techniques implementation, the respondents were asked to indicate the extent to which measurement techniques are used to evaluate performance. Table 6.8 shows the descending means for their responses about the extent to which these techniques are used in their performance measurement systems. In general, a set of key performance indicators techniques have been used to some extent for evaluating performance and it became an objective for most of the surveyed banks, with a mean of 3.215.

Comparing means of sub-groups from the table, it is observed that prospector, commercial, Large and private sub-groups banks have a higher level of use of these techniques more than others with means of 3.136, 3.081, 3.034 and 3.033 respectively. On the other hand, the remaining techniques have either not been used at all or used very little with the sample except the specialised banks that adopt different techniques in their performance measurements system



Table 6-8 Performance Measurement Techniques Used

Performance measurement techniques used	Mean	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
		PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
The use of balanced scorecard	1.080	1.068	1.108	1.044	1.081	1.077	1.054	1.101	1.083	1.077
The use of Economic value added	1.135	1.159	1.149	1.089	1.153	1.077	1.122	1.146	1.111	1.154
The use of Business Excellence model	1.098	1.114	1.081	1.111	1.097	1.103	1.095	1.101	1.083	1.110
The PMs is a set of key performance indicators	3.215	3.136	2.919	2.733	3.081	2.436	2.797	3.034	2.792	3.033
The PMs is not based on any of above	1.834	1.432	1.703	2.444	1.460	3.026	2.284	1.461	2.278	1.484
TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. Respondents were asked to indicate whether there have used any techniques in their performance measurement systems on 5-point scale (1 = Not at all used, 2 = To a little extent, 3 = Neither to a little nor to some extent, 4 = To some extent, 5= To a great extent)										

### 6.3.1.2 The Characteristics of the Performance Measurement System

Respondents were asked about the characteristics of performance measurement system used. Table 6-9 shows that most participants indicated that the performance measurement system is characterized by evaluation of processes, reward system, balanced set of financial and non financial measures, and linked with orientated business strategy with means 3.810, 3.632, 3.436, and 3.393 respectively. In addition, the table shows that the same order can be observed among all sub-groups of banks. However, this is not always the case with regard to specialised sub-group banks which reveal that their systems are not linked with the bank business strategy with a mean of 2.667.

### 6.3.1.3 The Aim of Performance Measurement System Used

The respondents were asked on a five point scale to express the objectives of the performance measurement system in their banks. Table (6-10) shows that most respondents classify the management of operations processes, measurement of business results, comparison of internal benchmarks, reward managers' contributions to business performance, and provide information to decision maker, are the most important objectives for performance measurement systems in their banks with means of 3.264, 3.141, 3.110, 3.061 and 3.006 respectively.



Comparing means of the sub-groups in banking categories from the table, it can be seen that prospector, commercial, large, and private sub-groups have given the same level of importance on previous purposes.

**Table 6-9 The Characteristics of Performance Measurement System**

The characteristics of system of performance measurement	Mean	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
		PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
The characteristic of the PMS is to link to our business strategy	3.393	3.500	3.459	3.178	3.621	2.667	3.135	3.607	3.626	3.097
The characteristic is to use balanced set of performance measures	3.436	3.591	3.446	3.267	3.524	3.154	3.270	3.573	3.571	3.264
The characteristic is to integrate with our evaluation process	3.810	3.705	3.797	3.933	3.798	3.846	3.878	3.753	3.747	3.889
The characteristic is to integrate with our reward system	3.632	3.523	3.730	3.578	3.750	3.256	3.527	3.719	3.648	3.611
TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. Respondents were asked to indicate whether there have used any techniques in their performance measurement systems on 5-point scale (1 = Strongly disagree, 2 = disagree, 3 = Neutral, 4 = Agree, 5= Strongly agree)										

**Table 6-10 The Objectives of Performance Measurement System**

The objective of performance measurement system	Mean	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
		PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
To measure business results	3.141	3.182	3.216	2.978	3.218	2.897	2.959	3.292	3.275	2.972
To manage strategy implementation	2.779	3.273	2.946	2.022	3.169	1.538	2.257	3.213	3.198	2.250
To assess the validity of business strategy	2.877	2.909	3.027	2.600	3.081	2.231	2.662	3.056	3.044	2.667
To manage operations processes	3.264	3.432	3.216	3.178	3.355	2.974	3.189	3.326	3.231	3.306
To inform decision making	3.006	3.295	3.081	2.600	3.266	2.179	2.743	3.225	3.231	2.722
To provide internal benchmarks	3.110	3.091	3.095	3.156	3.113	3.103	3.122	3.101	3.121	3.097
To reward managers' contributions to business performance	3.061	3.227	3.108	2.822	3.226	2.538	2.811	3.270	3.275	2.792
TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. Respondents were asked to indicate whether there have used any techniques in their performance measurement systems on 5-point scale (1 = Strongly disagree, 2 = disagree, 3 = Neutral, 4 = Agree, 5= Strongly agree)										



### 6.1.1.1 The Satisfaction with Performance Measurement System Used

Responding banks were asked to indicate on a five point scale, the level of satisfaction with current performance measurement system. The table 6-11 provides a summary of the average responses to three items which are used to measure the level of satisfaction. It appears from the table that the respondents indicate that the current performance measurement system is at a low level in meeting their expectations by a mean of 2.773. In addition, they suggest that the ideal system is also at the low level with mean of 2.626. However, the respondents state that the system is at a moderate level of overall satisfaction by a mean 3.080. As shown in the table, the prospector, commercial, large, and private sub-groups from different categories have the same opinions for this theme as their performance measurement systems have moderate level of overall satisfaction with average means 3.409, 3.185, 3.247 and respectively.

**Table 6-11 The Satisfaction of Performance Measurement System**

Statements	Mean	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
		PRO	ANA	DEF	COM	SPE	SB	LB	PUB	PRI
the performance measurement system of bank currently meets expectations	2.773	3.000	2.986	2.200	3.089	1.769	2.446	3.045	2.458	3.022
Ideal system	2.626	3.091	2.757	1.956	3.024	1.359	2.108	3.056	2.111	3.033
Overall satisfaction	3.080	3.409	3.054	2.800	3.185	2.744	2.878	3.247	3.000	3.143

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. Respondents were asked to indicate the level of their satisfaction on 5-point scale (1=very dissatisfy, 2=dissatisfy,3= natural, 4= satisfy, 5very satisfy)

### 6.1.1.2 The Importance of Several Indicators

This part of the questionnaire examined the importance of some financial and non financial indicators in Libyan banks. Respondents were asked on a five point scale to indicate the importance of selected indicators to the performance measurement system. Table 6-12 shows that the majority of respondents ranked almost all of the selected indicators as of "average importance". From the table, it is worth noting that, cash flow, return on investment, and cost reduction options as the most important indicators with means 2.926, 2.871, and 2.871 respectively, followed by Market share, and Market development with means of 2.834, and 2.736. Compared with sub-groups of all banking categories, the table shows that almost all sub-groups



namely prospector, commercial, large, and private sub-groups ranked return on investment and cost reduction as the most important indicators used in the performance measurement system. On the other hand, only the specialized sub-group banks ranked return on investment as an important indicator with mean of 3.040.

**Table 6-12 The Importance of Financial and Non Financial Indicators**

	Mean	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
		PRO	ANA	DEF	COM	SPE	SB	LS	PRI	PUB
Cash flow	3.337	3.386	3.095	3.689	3.298	3.462	3.432	3.258	3.154	3.569
Market share	2.982	3.250	2.824	2.978	3.048	2.769	2.878	3.067	3.022	2.931
Training and development	2.957	3.273	2.865	2.800	2.952	2.974	2.919	2.989	2.989	2.917
Return on investment	3.448	3.636	3.378	3.378	3.492	3.308	3.446	3.449	3.527	3.347
Cost reduction	3.933	3.886	4.027	3.822	3.984	3.769	3.905	3.955	3.978	3.875
Market development	3.147	3.364	3.135	2.956	3.169	3.077	3.108	3.180	3.099	3.208

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. Respondents were asked to indicate the level of their satisfaction on 5-point scale (1=very dissatisfy, 2=dissatisfy,3= natural, 4= satisfy, 5very satisfy)

## 6.2 The Current Use of Diverse Performance Measures

This section shows the findings of the descriptive and inferential analysis of the second part of the questionnaire which collected data about the opinions of respondents from all sub-groups within four banking categories regarding the use of performance measures. This is to achieve first and second research objectives:

- 1) To review and identify the type of financial and non financial performance measures used in Libyan banks.
- 2) To compare the type of performance measures that are utilized by Libyan banks according to their typologies/characteristics.

Respondents were asked to indicate on a five point Likert scale their opinions of the importance of the use of diverse performance measures (Financial, customer, learning and innovation, internal business, and community measures)<sup>4</sup> on performance measurement systems. The Likert scale was designed to measure the extent to which the participants' opinions that each set of statements related to the

<sup>4</sup> This categorization of performance measures is consistent with Kaplan and Norton, (1996) and Atkinson, et al (1997) notions that used in their research. Kaplan and Norton (1996) and Atkinson et al (1997) assume that organizational performance measurements are not constructs more than concepts, in terms of evaluation, and the organizational performance measurements depends on the following main dimensions (financial, customer, internal business process, learning and innovation, community). Therefore this study will adapt this categorization for two reasons: it is similar to previous studies in the area, and they cover internal and external dominations of performance measurements



above performance measures are disagree or agree. As mentioned earlier, the five point scale was utilized to capture respondents' opinions in respect to different performance measures applied by their banks. According to Maurer and Pierce, (1998) who state that:

*“Responses to a scale ranging from strongly agree to strongly disagree with a neutral response in the middle may be practically equivalent to providing a yes or no and a confident response. A response on the agree side of the scale may be equivalent to a yes response in the first aspect of a traditional measurement, whereas a response on the disagree side of the scale may be equivalent to a no response. The confidence, or strength, measurement in Likert-scale format is assessed as the distance away from the neutral response”.*

Therefore, in line with Maurer and Pierce's (1998) view, the average of respondents who agree or disagree with the importance of each set of performance measures can be determined whether they are using or not using them in their performance measurement systems. Furthermore, to estimate the response percentages of use or not use of performance measures, it was decided for the textual summaries to aggregate strongly disagree with disagree responses (answer 1 and 2 values) and strongly agree with agree responses (answer 4 and 5 values), whereas the neutral response (answer 3 value) is chosen as breaking point in the scale between the disagreement and agreement of applying the measure.

In addition, descending means were used to examine the extent of importance of the use of financial and non-financial measures that were implemented to measure, and evaluate performance. Moreover, with the aim of finding out the different use of performance measures among sub-groups within all banking categories, inferential statistics tests (the One Way ANOVA and Independent t-Test) were carried out on the full 5-point scale distribution of responses. Furthermore, computation data<sup>5</sup> is undertaken to combine a set of statements into a single variable/measure. In other words, an average of a respondent's scores for each set of statements is calculated

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<sup>5</sup> Computation data in SPSS was used which permits the researcher to recognize a mathematical or logical expression that is used to recode the data. This characteristic is frequently applied to transform the data in order to meet an assumption of a statistical test. Also it could be appropriate to combine several variables (items, statements or questions) that measure the same concept into a single variable; in addition to this it is increasing the reliability of the measure, and the computation equations are formulated as follows:

- FINANCIAL MEASURES = (F1+ F2+ F3+ F4+ F5+F6)/6
- CUSTOMER MEASURES= (C1+C2+C3+C4+C5)/5
- LEARNING AND INNOVATION MEASURES= (L&11 + L&12 + L&13 + L&14 + L&15 + L&16 + L&17)/7
- INTERNAL BUSINESS PROCESS MEASURES= (IN1 + IN2 + IN3 + IN4 + IN5 + IN6 + IN7)/7
- COMMUNITY MEASURES= (COM1 + COM2 + COM3 + COM4+COM)/5



for all sub-groups within the four banking categories, which is used as a measure for the extent of the use of performance measure, where the low end of the scale indicates a low level of use and the high end indicates a high level of use. In order to present the findings of the analysis of this part of the questionnaire, this section is divided into five sub-sections including 30 statements which describe the extent of the importance of use of financial and non financial performance measures. Each sub-section was intended to show the findings of participants' opinions concerning the use of diverse performance measures that were selected for purposes of the current study as follows:

**6.2.1 Financial Performance Measures:**

**6.2.1.1 Descriptive Analysis of The Use of Financial Measures**

The use of financial measures was examined in six statements in all banking categories. These statements include when financial figures (statement 2.1) is used for performance, the achievement of financial targets (statement 2.2), financial target reflect promotions (statement 2.3), the importance of financial ratios (statement 2.4), the achievement of financial planning reflect performance (statement 2.5), and the importance of information in financial reporting as the most important resource (statement 2.6). The respondents were asked to indicate their opinions concerning the six statements which related to the importance of use of financial measures as application of performance measurements. Participants' responses to these statements are presented in table 6.13-1, the table highlights responses percentages, and the descending means for each statement of all sub-groups in four banking categories, in addition to the relative average score for these statements to identify the extent of the importance of use of financial performance measures.

The bold figures, as can be seen in the table 6.13.1, illustrate the highest responses mean for each statement among all sub-groups in four banking categories. For example, response for statement (2.1) shows that about 75 per cent of participants agreed the importance of financial figures as financial measure of performance with an average mean was 4.037. The highest means of responses regarding this statement were the prospector sub-group (mean 4.500), followed by large sub-group (4.292), then private, and commercial sub-groups with means 4.275, and 4.234



respectively. On the other hand, about 14 per cent of participants disagreed about for the importance of financial figures. This disagreement comes from some of the remaining sub-groups which are analyzer, specialized, small, and public sub-groups banks, as could be noted all means of these sub-groups were below 3 value and the lowest was defender banking sub-group with mean of 2.401.

The second statement (statement 2.2) sought to investigate participants' opinions of achieving financial targets as the basis in financial measures. It might be seen from the table 6-13-1 that approximately 72 per cent of the aggregate responses agreed with the achievement of financial targets as financial measure is used in their performance measurement systems with an average mean was 4.067. This harmony comes from all sub-groups in four banking categories with means up than 3.487. On the other hand, about 9 per cent of respondents -defender sub-group- have the opposite opinion regarding this statement with mean 2.756.

In line with the previous statement, the third statement (2.3) was perceived by participants from all sub-groups in four banking categories to enhance the use of financial measures. As can be seen in table 6-13-1 about 66 per cent of the respondents believe the promotion depends on achievement of the financial targets. Nevertheless about 17 per cent of respondents disagreed regarding the statement. This result was supported by the means of the participants' responses when all sub-groups in four banking categories reported a high mean as observed in table 6-13-1. The highest mean was the prospectors sub-group banks with a mean of 3.795, however, the lowest mean was specialized sub-group banks with mean of 3.462, while the average calculated mean for this statement was 3.779.

As can be seen in the table 6.13.1, the bold numbers illustrate the highest responses mean for statement (2.4) by all sub-groups in four banking categories. The table shows that more than 76 per cent of participants believe that the use of financial ratios is an important tool as a financial measure of performance with an average mean of 4.067. The highest means of responses regarding the statement were the prospector sup-group (mean 4.250), followed by large sub-group (mean 4.191), after that private and commercial sub-groups with mean 4.187 and 4.161 respectively. On the other hand, only about 7 per cent of participants disagree with the importance of financial ratios. This disagreement comes from some of the remaining sub-groups



which are defender, and specialized banks as can be noted all means of these sub-groups were the lowest means which were 3.822, and 3.769 respectively.

Table 6-13-1 shows that approximately 69 per cent of participants agree when achieving financial targets is related to the use of financial measures with an average mean of 3.963. In contrast, about 10 per cent of participants had an opposite view and believe that achieving financial targets does not depend upon the use of financial measures. The average means of all sub-groups in banking categories, as shown in the table 6-13-1, support the previous result. For instance, several sub-groups are above 4 mean value like the prospector sub-group banks (mean 4.205), while the, large, private, and commercial sub-groups banks 4.146, 4.132, and 4.121 respectively, on the other hand, other sub-groups are in the same direction with lower means, such as defender, small, specialized and public sub-groups with means 3.778, 3.743, 3.462, and 3.750 respectively.

In line with previous statements, the sixth statement (2.6) shows the use of financial reporting information as a tool of financial measures. As can be seen in table 6-13-1 approximately 74 per cent of the respondents believe that the importance of financial reporting details is the basis of financial measures with an average mean 4.092, but there is only about 7 per cent of respondents have the opposite view regarding the statement. This result was supported by the calculated means of the participants' responses when all sub-groups in four banking categories reported above 3 as observed in table 6-13-1. For example, the highest mean was the prospectors sub-group banks with mean 4.341, the lowest mean, however, was small, and specialized sub-group banks which means: 3.878 and 3.718 respectively.

In general, participants were asked about the importance of the financial figures, financial ratios and how Libyan banks value the financial measures. About 72 per cent of participants agree with all listed statements which were the importance of financial measures and that their banks utilize the financial measures in one way or another, with an average mean 4.001. In addition, table 6-13-1 shows that the average is high among all banking sub-groups namely prospector, large, commercial, and private banks sub-groups (means = 4.246, 4.161, 4.142, and 4.152 in that order). On the contrary, only about 11 per cent of respondents do not see the importance of use of financial measures, which may appear somewhat surprising to the majority of researchers in the field. Furthermore, the importance of use of



financial measures is relatively little compared with other sub-groups, which are defender and specialised sub-groups banks with means = 3.781, and 3.551 respectively.

#### 6.2.1.2 Inferential Analysis of The Use of Financial Measures

The descriptive analysis suggests that there are relatively different means reflecting the importance of use of financial measures among all sub-groups in banking categories. To test whether these differences are statistically significant regarding the above statements, One Way ANOVA and Independent Sample t-Test (Inferential tests) were used to find out whether the means of single and multiple variable(s) differ from sub-groups. As mentioned earlier, the second objective of this study is to examine the difference (if any) in the use of performance measures among all sub-groups of each banking category. Thus this sub-section discusses each test as follows:-

##### A- Independent Sample T-test:

The independent-sample T-test was carried out to find out whether the means of sub-groups in three banking categories, (the type of business category, type of ownership category and the size of bank category) of single variable differ from each others. Table 6-13-2 indicates the results of Independent sample T-test regarding the above statements which is related to the importance of use of financial measures. The hypothesis of this test are  $H_0$ : *The means of sub-groups in all three banking categories are not significantly different regarding the importance of use of financial measures*, and  $H_1$ : *The means of sub-groups in all three banking categories are significantly different regarding the importance of use of financial measures*. The results presented in table 6-13-2 show no significant difference between all sub-groups means in three banking categories (P 0.761, 0.312, and 0.052 respectively). Therefore, the hypothesis  $H_0$  is supported, which means that there is not a significant difference regarding the use of financial measures between sub-groups in the three banking categories.

##### B- One Way ANOVA

Similarly, the One Way ANOVA was undertaken to find out whether the means of sub-groups from the type of business strategy orientation category of single variable differ from each other. Hypotheses of this test are  $H_0$ : *There are no significant*



*differences between the sub groups' mean regarding the importance of use of financial measures, and H<sub>1</sub>: There are significant differences between the subgroups' mean scores regarding the importance of use of financial measures.*

The results presented in table 6-13-2 illustrate a significant difference between all sub-groups means ( $P=0.028$ ). Therefore, the hypothesis H<sub>0</sub> is rejected, which means that there are significant differences regarding the *importance of use of financial measures* among the sub-groups in each banking category. From the findings of the table 6-13-2, it could be suggested that participants from all sub-groups in four categories (the type of business category, the type of ownership category, and the listing on the Libyan Stock Market category) do not have a consensus on the *importance of use of financial measures*. This may be caused by the impact of banking characteristics on the use of financial measures.

Outcomes indicate that financial measures are important in about 72 per cent of the participant banking sub-groups. Comparisons tests (One Way ANOVA and T-test) findings show that the importance of use of financial measures are significantly different among sub-groups from the three banking categories, however, sub-group from the business strategy category are significantly different regarding the use of financial measures.

These results are consistent with previous studies, for example, Behn (2003) concludes that the financial ratios as one of the traditional financial measures, have been the popular measures for evaluating performance - although any organisation has not just used only one measure but a variety of financial ratios such as return on equity and return on investment were used to indicate how well the organisation is doing their business-or, at least, how well it has done. Furthermore, Goldratt and Fox, (1993) claim that although, the use of non financial measures for performance are recommended, but financial performance is still the most important dimension of performance to be measured. In addition, Eccles and Pyburn (1992) developed a comprehensive performance measurement system that incorporates both financial and non financial measures. They state that financial measures play a central role in evaluating performance such as they indicate how well managers are utilizing the assets under their control to increase shareholder value, however, there are major limitations in reliance on only financial measures of performance.



On the other hand, a few respondents (11%) believe that they do not see the importance of the use of financial measures. The possible reason for this view is the corruption prevailing in Libyan society. Administrative corruption is a phenomenon that comes from extortion by officeholders who are able to make it difficult for an organisation to operate in a particular country. There are some countries in the developing world where corruption is rife (Gloster-Coates and Quest, 2005).

The prevailing cultural attitude in the developing countries, such as Libya, encouraged students to obtain degrees with a traditional curriculum from the education system rather than the technical skills required in national economy. Such education has created an imbalance in the labour market and, therefore, nepotism plays a great role in employment (Hayajenh et al, 1994). Hayajenh, et al (1994) state that organisations which disallow nepotism, are more effective than those which allow it. Based on the empirical evidence provided by their study, they concluded that nepotism violates the basic rule of equal employment opportunities, which recognizes “the right person for the right job”. Therefore, it was not surprising to find staff not qualified for the job of running organisations. The main reason why they damage their business is that they do not have the managerial skills to carry out highly skilled jobs and to achieve the firm’s objectives.



Table 6-13-1 Descriptive Analysis of the Use of Financial Measures

Statements	The level of use			Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
	Percentages%					PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
	1/2	3	4/5											
(F1)	14.1	11.0	74.8	4.037	1.088	4.500	3.986	3.667	4.234	3.410	3.730	4.292	4.275	3.736
(F2)	9.2	19.0	71.8	4.067	1.055	4.386	4.054	3.778	4.250	3.487	3.878	4.225	4.187	3.917
(F3)	17.8	16.6	65.6	3.779	1.181	3.795	3.851	3.644	3.879	3.462	3.703	3.843	3.901	3.625
(F4)	6.7	16.6	76.7	4.067	0.917	4.250	4.108	3.822	4.161	3.769	3.919	4.191	4.187	3.917
(F5)	10.4	20.9	68.7	3.963	1.094	4.205	3.932	3.778	4.121	3.462	3.743	4.146	4.132	3.750
(F6)	7.4	19.0	73.6	4.092	1.011	4.341	4.000	4.000	4.210	3.718	3.878	4.270	4.231	3.917
FinMea	10.9	17.2	71.9	4.001	.8235	4.246	3.989	3.781	4.142	3.551	3.809	4.161	4.152	3.810

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. F1= Financial figures importance, F2= Financial targets achievement, F3= Financial target and promotion, F4= Financial ratios importance, F5= Financial figures and performance, F6=Financial figures and information source, FinMea= an average of a statements scores related to financial measures. 1/2=the textual summaries to aggregate strongly disagree and disagree responses which equal to "Not used", 3= a neutral response, 4/5= the textual summaries to aggregate strongly agree and agree responses which equal to "Yes used"

6-13-2 Inferential Analysis of the Use of Financial Measures

Statements	One Way ANOVA For sub-groups in TOSTRCAT		Independent Sample T-test For sub-groups in TSBCAT		Independent Sample T-test For sub-groups in SIZCAT		Independent Sample T-test For sub-groups in TOWCAT	
	F	Sig	F	Sig	F	Sig	F	Sig
(F1)	7.179	0.001	0.092	0.762	0.347	0.557	3.626	0.059
(F2)	3.844	0.023	1.226	0.270	0.826	0.365	0.199	0.656
(F3)	0.432	0.650	8.608	0.004	2.700	0.102	5.514	0.020
(F4)	2.604	0.077	2.562	0.111	3.765	0.054	0.375	0.541
(F5)	1.764	0.175	4.490	0.036	5.594	0.019	8.837	0.003
(F6)	1.845	0.161	10.361	0.002	6.606	0.011	12.685	0.000
FinMea	3.675	0.028	0.093	0.761	1.028	0.312	3.817	0.052

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. F1= Financial figures importance, F2= Financial targets achievement, F3= Financial target and promotion, F4= Financial ratios importance, F5= Financial figures and performance, F6=Financial figures and information source, FinMea= an average of a statements scores related to financial measures. Independent Sample T-test is to compare means for two sub-groups of category/cases. The subjects should be randomly assigned to two sub-groups. One Way ANOVA is to produces an analysis of variance for one treatment factor to test the hypothesis that several means are equal. In addition to determining that differences exist among the means, may want to know which means differ by running a priori contrasts or post hoc tests. Used with no repeated measures; between-sub-groups design; when the independent variable has more than 2 levels.



**6.2.2 Customer Performance Measures:**

**6.2.2.1 The Descriptive Analysis of The Use of Customer Measures**

The use of customer measures is investigated in five statements, including customer reaction (statement 2.7), customer complaints (statement 2.8), customer satisfaction reflecting the level of performance (statement 2.9), customer expectation (statement 2.10), and customer loyalty (statement 2.11). The respondents were asked to specify the extent to which their banks employ the customer measures in their performance measurements systems. The respondents' responses are explained in table 7.14-1 which demonstrates the percentages, descending means and the average mean for the above statements that related to the use of customer measures.

The bold figures in table 6-14-1 indicate that 51 per cent of participants select the level of gaining customer loyalty (statement 2.11) as an important aspect of the use of customer measures with a mean of 3.387, while 48 per cent select the number of customer complaints as a reflection of performance (statement 2.8) as the important element of the use of customer measures with a mean of 3.356, whereas 46 per cent of participants consider customer reactions towards services (statement 2.7) as the important part of the used customer measures with a mean of 3.325. Otherwise, only about 25 per cent of respondents do not see the same view regarding the above three statements as the important aspects of the use of customer measures in performance measurement systems. These results were provided by the calculated means of the participants' responses when all sub-groups in four banking categories reported above 3 as observed in table 6-14-1 regarding the previous statements. For example, the highest mean was the prospector sub-group banks. However, the lowest mean was defender sub-group banks which is less than 3 value.

Similarly, table 6-14-1 reveals that 45 per cent of participants believe that the ability to meet customer expectations (statement 2.9) as reflection for performance, is an important aspect of customer measures with the average means of 3.209. Whereas 51 per cent of participants agree that achieving customer satisfaction (statement 2.10) is used as a customer measure with a mean 3.279. In contrast, only 26 per cent of participants had an opposite view and believe that ability to meet customer expectations and achieving customer satisfaction are not suitable to use as customer measures. Table 6-14-1 shows that calculated average means of all sub-groups



supported the previous result, for instance, prospector sub-group banks in two statements 2.9-2.10, have highest means (means 3.841, and 3.909 respectively), On the other hand, defender sub-group is the lowest means (2.689 for both).

In general, respondents were asked about the importance of customer' satisfaction, customer' complaints, how to achieve their requirements and how the bank can meet their expectations. Approximately 48 per cent of the participants state that due to the increase of the importance of customer issues, they focus on customer measures to evaluate performance with an average score of 3.310. Otherwise, about 25 per cent of the participants indicate that they are not seeing the substance of the use of customer measures to evaluate performance.

**6.2.2.2 Inferential Analysis of The Use of Customer Measures**

Table 6-14-1 concludes that the means of the use of customer measures are different in all sub-groups in four banking categories. To analyze whether these differences are statistically significant among the surveyed banks, one way ANOVA and the independent T-test (Inferential tests) were employed to determine whether the means of statements differ between sub-groups of each banking category. The table 6-14-2 shows the result of inferential tests for all sub-groups as follows:

**A- Independent Sample T-test:**

The T-test was performed to identify whether the means of sub-groups (The sub-groups in type of business category, sub-groups in the size of bank category, sub-groups in type of ownership category) of single variable differs from other sub-groups within each category regarding statements that related to the use of customer measures.

The table 6-14-2 shows that there are various results: firstly there is a significant difference between the sub-groups means from type of business category ( $P=0.006$ ), therefore,  $H_0$  is rejected, which means that there is a significant difference regarding the use of customer measures between commercial and specialized sub-groups banks.

On the other hand, this is not always the case in other sub-groups from the size of bank category and the type of ownership category. They are not significantly different ( $P=0.694$  and  $0.964$  respectively), as a result,  $H_0$  is supported, which means that there is not a significant difference regarding the use of customer



measures between public and private sub-groups, also there are no significant differences between listed and unlisted sub-groups banks regarding the importance of use of customer measures in their performance measurement systems.

### **B- One Way ANOVA:**

In the same way, the One Way ANOVA aims to find out whether the means of sub-groups banks from the type of business strategy orientation category are different. The results show in table 6-14-2 illustrates that there are significant differences among sub-groups means ( $P= 0.00$ ) regarding the use of customer measures. Therefore, the hypothesis  $H_0$  is not accepted, which suggests that the sub-groups are significantly different regarding the importance of use of customer measures in their performance measurement systems.

Results also indicate that customer measures are employed in 45 per cent of the participant banking sub-groups. Comparisons tests (One Way ANOVA and T-test) illustrate that these measures are significantly different among sub-groups from two categories which are the business strategy category, and type of business category. But, this is not always true, the customer measures are not significantly different between sub-groups from the remainder categories. However, about 25 per cent of respondents believe that they do not see the importance of use of customer measures to evaluate performance.

This result may be somewhat unexpected to the majority of researchers in the area. This may be attributable to the fact that some Libyan banks such as specialized and small sub-groups banks are being dominated by government. These sub-groups often aim to assist for achieving socialist targets such as the economic transition plans and self-sufficiency programs more than make profits, where competition does not exist, hence, little attention is paid for the customers' issues. Therefore, it is likely to find part of Libyan banks with little consideration for customer matters, as a result, these sub-groups banks do not use customer measures and, accordingly, they could not totally assess their importance and the use of customer measures in performance measurement systems.

These findings are somewhat in line with other previous studies, for example, Srinivasan (1997) concludes that customer measures were frequently used, and they have a positive effect of profitability, which is possible to indicate the future rather



than current improvement. Furthermore, management need to achieve the requirements for stakeholders like customers, employees and shareholders to accomplish better performance (Brignall and Ballantine, 1996). In addition, Anderson et al (1997) argue that customer measures like customer satisfaction are positively associated with contemporary accounting performance. Perera, (1997) conclude that the use of non financial measures is associated with enhanced performance for organisations pursuing customer satisfaction through their strategy. Ittner and Larcker (1998) investigate the relationship between customer satisfaction and firms performance. They found evidence that customer satisfaction measures are associated with the firms' current market value. Furthermore, Behin and Riley (1999) report that, in the U.S. airline industry, customer measures are associated with financial performance. Foster and Gupta (1997) supply evidence on the link between customer satisfaction and future profitability. Similarly, Banker et al (2000) provide evidence on the impact on non financial measures, such as customer measures on the future accounting based performance and positively related to future financial performance. In contrast, Ittner and Larcker (1998) suggest that many firms do not experience a significant association between customer satisfaction and contemporary accounting and market returns. In summary, the results of the majority of these studies find a positive relationship between future firm performance and the use of customer measures.



Table 6-14-1 Descriptive Analysis of the Use of Customer Measures

Statements	The level of use			Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
	Percentages%					PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
	1/2	3	4/5											
(C1)	25.2	28.8	46.0	3.325	1.170	3.909	3.867	2.649	3.315	3.359	3.284	3.360	3.275	3.389
(C2)	23.2	28.2	48.6	3.356	1.179	4.045	3.844	2.649	3.355	3.359	3.270	3.427	3.363	3.347
(C3)	26.7	27.6	45.7	3.209	1.162	3.841	3.444	2.689	3.153	3.385	3.135	3.270	3.077	3.375
(C4)	26.1	22.5	51.4	3.276	1.146	3.909	3.622	2.689	3.218	3.462	3.243	3.303	3.121	3.472
(C5)	26.8	21.7	51.5	3.387	1.219	4.250	3.333	2.905	3.532	2.923	3.297	3.461	3.429	3.333
CusMea	25.6	25.8	48.6	3.310	.8903	3.991	3.622	2.716	3.315	3.297	3.246	3.364	3.253	3.383

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks, C1= Customer reactions, C2= Customer complaints C3= Customer satisfaction and performance, C4= Customer expectations, C5= Customer Loyalty, CusMea=average of overall statements related to customer measures. 1/2=the textual summaries to aggregate strongly disagree and disagree responses which equal to "Not used", 3= a neutral response, 4/5= the textual summaries to aggregate strongly agree and agree responses which equal to "Yes used"

Table 6-14-2 Inferential Analysis of the Use of Customer Measures

Statements	One Way ANOVA For sub-groups in TOSTRCAT		Independent Sample T-test For sub-groups in TSBCAT		Independent Sample T-test For sub-groups in SIZCAT		Independent Sample T-test For sub-groups in TOWCAT	
	F	Sig	F	Sig	F	Sig	F	Sig
(C1)	31.091	0.000	2.041	0.155	0.795	0.374	2.143	0.145
(C2)	35.065	0.000	1.827	0.178	0.354	0.553	0.586	0.445
(C3)	17.919	0.000	3.586	0.060	1.132	0.289	0.710	0.401
(C4)	23.655	0.000	13.506	0.000	2.694	0.103	3.846	0.052
(C5)	21.014	0.000	0.237	0.627	0.034	0.855	0.267	0.606
CusMea	52.495	0.000	7.908	0.006	0.155	0.694	0.002	0.964

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. C1= Customer reactions, C2= Customer complaints C3= Customer satisfaction and performance, C4= Customer expectations, C5= Customer Loyalty, CusMea=average of overall statements related to customer measures. Independent Sample T-test is to compare means for two sub-groups of category/cases. The subjects should be randomly assigned to two sub-groups. One Way ANOVA is to produces an analysis of variance for one treatment factor to test the hypothesis that several means are equal. In addition to determining that differences exist among the means, may want to know which means differ by running a priori contrasts or post hoc tests. Used with no repeated measures; between-sub-groups design; when the independent variable has more than 2 levels.



### **6.2.3 Learning and Innovation Performance Measures**

#### **6.2.3.1 The Descriptive Analysis of the Use of Learning and Innovation Measures**

The respondents were asked to indicate the level of innovation that they used for example introducing new services or discovering new markets, and how could they learn and give advantage from their own experience and from others' experience. To examine the use of learning and innovation measures for evaluation of performance, seven statements were considered. These statements are: acquiring modern technology (statement 2.12), introducing new services (statement 2.13), discovering new markets (statement 2.14), monitoring competitors (statement 2.15), benchmarking competitors (statement 2.16), training courses for employees (statement 2.17), and updating databases (statement 2.18). Table 7.15-1 shows the percentages, the descending means, and the average means, for these statements to determine the extent of use of learning and innovation performance measures.

The bold figures in table 6-15-1 indicate that about 78 per cent of participants select the training course for employees (statement 2.17) as the important aspects of innovation and learning measures with mean of 4.178. Likewise about 77 per cent of participants choose creating new idea about provided services (statement 2.13) as the important aspects of innovation and learning measures with mean of 4.175. While approximately 77 per cent of banks consider acquiring the modern technologies (statement 2.12) is important as innovation and learning measures, with mean of 4.147. Otherwise, only less than 11% of respondents do not see the same view regarding the previous three statements as the important aspects of use of innovation and learning measures. These results were held by the calculated average means of the participants' responses when all sub-groups reported above 4 as observed in table 6-15-1. For example, the highest mean was the prospector sub-group banks, and the lowest mean, however, was specialized sub-group banks.

In same direction, the table 6-15-1 shows that approximately 69 per cent of participants agree when both the monitoring competitors (statement 2.14), and discovering new markets (statement 2.15) are used as innovation and learning measures with mean of 3.798, 3.773 respectively. Furthermore, about 66 per cent of participants think that updating databases (statement 2.18) is important to use as



innovation and learning measures with a mean of 3.859. On the other hand, less than 20 per cent disagreed regarding the use of these statements as innovation and learning measures. As can be shown in the table 6-15-1, the calculated average means of all sub-groups support the previous result, such as, the prospector sub-group banks had the highest mean (means 4.000 for all statements 2.14, 2.15, and 2.18). In contrast, specialized sub-group banks had lowest means 2.795 for statements. However, as can be seen from the tables, benchmarking competitors (statement 2.17) was accepted as innovation and learning measures form only 48 per cent of participants, with mean of 3.368.

In general, the table confirms that the level of the use of learning and innovation measures is more prominent compared with earlier measures. As can be seen, on average, approximately 70 per cent of the participants believe that the use of learning and innovation measures is important for evaluating performance with an average score of 3.900. Otherwise, only 13 per cent of the respondents indicate that they do not see the value of the use of learning and innovation measures for evaluating performance. Table 6-15-1 indicates that most of the sub-groups from different categories, on average, are agreed with the statements which related to the use of learning and innovation measures in their performance measurement systems.

**6.2.3.2 Inferential Analysis of the Use of Learning and Innovation Measures**

To explore whether sub-groups' means relate to the use of learning and innovation measures are significantly different between sub-groups within all categories, one way ANOVA and independent T-test (Inferential tests) were used. The table 6-15-2 indicates the results of tests for all sub-groups as follows:

**A- Independent Sample T-test:**

The T-test was carried out to find out whether the means of sub-groups (sub-groups from type of business category, sub-groups from size of bank category, and sub-groups from the type of ownership category) of a single variable differ from each sub-group in overall statements. From the table, it can be found that there are conflicting results among all sub-groups: firstly there is a significant difference between sub-groups means from the type of business category and the size of bank category ( $P= 0.000$ ). Therefore,  $H_0$  is not supported, which means that there is a



significant difference regarding the use of innovation and learning measures between commercial and specialized banks, and there is a significant difference between small and large banks. In contrast, there is no significant difference between sub-groups in the type of ownership category, thus  $H_0$  is accepted, which means there is not a significant difference regarding the use of internal business measures between private and public banks.

#### **B- One Way ANOVA:**

The One Way ANOVA was applied to find out whether the means of sub-groups from the type of business strategy orientation category are different. The results shown in table 6-15-2 demonstrate that there is a significant difference between all sub-groups means ( $P= 0.003$ ). Therefore, the hypothesis  $H_0$  is not accepted, which suggests that the sub-groups in the type of business strategy orientation category are significantly different regarding the use of learning and innovation measures in their performance measurement systems.

Results also demonstrate that innovation and learning measures were applied in about 70 per cent of participating banks. Comparison tests (One Way ANOVA and T-test) findings illustrate that these measures are significantly different among sub-groups from only the business strategy category, but, other sub-groups are not significantly different in the remaining categories. These results are not a reflection of the majority of researchers but they are in line with other previous studies conducted in this field (such as Rouse et al, 2002, and Hirschey et al, 2001). Rouse et al (2002) suggest that the airline company have prompted deliberate processes directed towards continuous improvement and management. They propose that overall gains have been achieved in efficiency and learning culminating in across the board improvement, and learning is a major contributor to improvement and has elevated the level of performance. In addition, Hirschey et al, (2001) suggest that non financial information on the quality of patents has consistently positive effects on stock prices.

These results suggest that the banks of Libya have started new processes that have been issued by the Central Bank of Libya to guide the banking sector towards continuous improvement like the use of the latest technology in banking services. The findings also have become apparent that, in general, progress has been made



regarding efficiency and learning culminating in an overall improvement. Therefore, it is normal to find some Libyan banks with developed technologies and an adequate level of services, which reflect the importance of the use of learning and innovation measures in their performance measurement systems.



Table 6-15-1 Descriptive Analysis of the Use of Learning and Innovation Measures

Statements	The level of use Percentages%			Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
	1/2	3	4/5			PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
(L&I 1)	5.5	17.2	77.3	4.147	0.8974	4.250	4.176	4.000	4.250	3.821	4.054	4.225	4.209	4.069
(L&I 2)	4.3	17.8	77.9	4.175	0.8953	4.432	4.176	3.933	4.403	3.462	3.959	4.360	4.352	3.958
(L&I 3)	17.8	13.5	68.7	3.798	1.0667	4.000	3.838	3.533	4.032	3.051	3.527	4.022	4.066	3.458
(L&I 4)	19.6	11.7	68.7	3.773	1.0675	4.000	3.919	3.311	4.081	2.795	3.473	4.022	4.055	3.417
(L&I 5)	23.9	27.6	48.5	3.368	1.1219	3.886	3.432	2.756	3.597	2.641	3.027	3.652	3.626	3.042
(L&I 6)	11.0	10.4	78.5	4.178	1.0478	4.500	4.068	4.044	4.363	3.590	3.919	4.393	4.385	3.917
(L&I 7)	9.2	24.5	66.3	3.859	0.9805	4.000	3.770	3.867	4.032	3.308	3.662	4.022	4.044	3.625
LeaInnMea	13.0	17.5	69.4	3.900	.71695	4.153	3.911	3.635	4.108	3.238	3.660	4.100	4.105	3.641

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. L&I1= Acquiring the modern IT, L&I2= Create new idea, L&I3= Monitoring competitors, L&I4= Identifying new market, L&I5= Benchmarking competitors L&I6= Training courses for employees, L&I7= Updating databases. LeaInnMea=average of overall statements related to learning and innovation measures. 1/2=the textual summaries to aggregate strongly disagree and disagree responses which equal to "Not used", 3= a neutral response, 4/5= the textual summaries to aggregate strongly agree and agree responses which equal to "Yes used"

Table 6-15-2 Inferential Analysis of the Use of Learning and Innovation Measures

Statements	One Way ANOVA For sub-groups in TOSTRCAT		Independent Sample T-test For sub-groups in TSBCAT		Independent Sample T-test For sub-groups in SIZCAT		Independent Sample T-test For sub-groups in TOWCAT	
	F	Sig	F	Sig	F	Sig	F	Sig
(L&I 1)	48.610	0.000	7.796	0.006	12.651	0.000	1.378	0.242
(L&I 2)	20.467	0.000	16.286	0.000	1.830	0.178	0.351	0.555
(L&I 3)	26.756	0.000	27.754	0.000	12.354	0.001	8.682	0.004
(L&I 4)	29.671	0.000	0.009	0.926	1.751	0.188	5.413	0.021
(L&I 5)	12.719	0.000	0.919	0.339	0.109	0.742	0.506	0.478
(L&I 6)	14.919	0.000	2.590	0.109	1.861	0.174	0.340	0.561
(L&I 7)	11.440	0.000	0.826	0.365	0.001	0.979	0.017	0.897
LeaInnMea	48.742	0.000	26.196	0.000	15.243	0.000	3.160	0.077

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. L&I1= Acquiring the modern IT, L&I2= Create new idea, L&I3= Monitoring competitors, L&I4= Identifying new market, L&I5= Benchmarking competitors L&I6= Training courses for employees, L&I7= Updating databases. LeaInnMea=average of overall statements related to learning and innovation measures. Independent Sample T-test is to compare means for two sub-groups of category/cases. The subjects should be randomly assigned to two sub-groups. One Way ANOVA is to produces an analysis of variance for one treatment factor to test the hypothesis that several means are equal. In addition to determining that differences exist among the means, may want to know which means differ by running a priori contrasts or post hoc tests. Used with no repeated measures; between-sub-groups design; when the independent variable has more than 2 levels.



6.2.4 Internal Business Performance Measures

6.2.4.1 The Descriptive Analysis of the Use of Internal Business Process Measures

The respondents were asked to give their opinions about the use of internal business measures in their banks, for example, the importance of employees' satisfaction, service quality levels and on time delivery. In order to investigate the current use of internal business measures, seven statements have used. These statements were: employees satisfaction (statement 2.19), delivery on time for services (statement 2.20), the number of transactions reflection of the level of performance (statement 2.21), the importance of quality of services (statement 2.22), turnover of employees (statement 2.23), teamwork and coordination for employees (statement 2.24), and improving employees' productivity (statement 2.25). Table 7.16.1 reveals the percentages, the descending means, and average means, for these statements.

The bold figures in table 6.16.1 indicate that the statement (2.22), the importance of quality service has the highest mean score (3.509) resulting from 53 per cent of respondents agreeing or strongly agreeing with it. As shown in the table, the statement (2.20) delivery on time for banking services is the second highest mean score (3.417) with as many as about 51 per cent of the aggregate responses of the participants. At the same time, the statement (2.21) number of transactions as reflection of performance is the third highest mean score (3.337) based on the responses from Libyan banks, as many as 48 per cent either agreed or strongly agreed with this statement. However, about 28 of respondents do not have the same view regarding the previous three statements as the important aspects of internal business measures. These results were held by the calculated average means of the sub-groups' responses in four banking categories, which report above 4 as observed in table 6-16-1, for example, the highest mean was the prospector sub-group banks, and the lowest mean, however, was defender sub-group banks.

The table 6-16-1 shows that efforts to improve their employees' productivity, the rate of employee turnover, and encouraging teamwork and coordination for employees' aspects have to be the importance of the use an internal business measures with a mean of 3.215, 3.288, and 3.184 respectively, as many as about 42 per cent of respondents either agreed or strongly agreed with these statements. On



the other hand, about 27 per cent of participants do not see these statements as the important aspects of the use an internal business measures.

In general, the use of internal business measures such as those related to employees and their satisfaction. Respondents were asked about the importance of employees' satisfaction, services quality, and on time delivery. Approximately 46 per cent of the participants indicated that the use of internal business measures is important for evaluating performance, with an average mean of 3.302. But, about 23 per cent of the respondents indicated that they do not see the value of the use of internal business measures for evaluating performance. Table 6-16-1 showed that most sub-groups of banks in four banking categories, such as prospector, large and private sub-groups banks, agree regarding the importance of use of these measures with the means score higher than 3.100. In contrast, some sub-groups like defender and specialized sub-groups had lowest means.

**6.2.4.2 Inferential Analysis of the Use e of Internal Business Measures**

Table 6-16-1 concludes that the means of the use of internal business measures are different in all sub-groups in each category. The independent T-test and one way ANOVA tests (Inferential tests) were employed to discover whether these differences are significant between sub-groups. The table 6-14-2 provides an idea about the results of tests for all sub-groups as follows:

**A- Independent Sample T-test:**

The Independent T-test was used to examine whether the means of banking sub-groups (The subgroups of type of business category, sub-groups of size of bank category, and sub-groups of the type of ownership category) of single variable differ from each sub-group in overall statements of the use of internal business measures. Table 6-15-2 shows that there are various results: firstly there is no significant difference between sub-groups means from the three categories ( $P= 0.747, 0.503,$  and  $0.091$ ). Therefore,  $H_0$ , are supported, which means that there is no significant difference regarding the use of learning and innovation measures within sub-groups in all three categories.



**B- One Way ANOVA:**

Likewise, to find out whether the means of sub-groups from the type of business strategy orientation category are different, the One Way ANOVA was used. Table 6-16-2 reveals that there is a significant difference between sub-groups means ( $P=0.000$ ). Therefore,  $H_0$  is rejected, which suggests the sub-groups from the type of business strategy orientation category are significantly different regarding the importance of the use of internal business measures.

Results highlight that internal business measures were applied by the 46 per cent of the participant banks. Comparison tests (One Way ANOVA and T-test) show that these measures are significantly different among sub-groups from three banking categories which are the business strategy category, type of business category, and the size of bank category, while the use of internal business measures are not significantly different between sub-groups from type of ownership category. Conversely, about 22 per cent of respondents think that they do not notice the importance of use of internal business measures for evaluating performance. This is consistent with other previous studies. Heskett et al (1994) consider that employees' satisfaction is a necessity for customer satisfaction and consequent profit. In addition, Brignall and Ballantine (1996) argue that the important element in making control system is employee satisfaction, which will be linked to the organisational reward system effective. Furthermore, Hvolby and Thorstenson (2001) point out that the most frequently measured performance indicators were 'quality levels'. Moreover, Chenall (1997) conclude that firms using quality control measures as one of their non financial performance measures achieve higher performance than those firms that do not use these measures. In addition, Abernethy and Lillis (1995) indicate that greater reliance on non financial measures, such as quality control, has a more positive effect on performance. Taken together, the results of these studies are consistent with the results of the current study concerning the application of internal business measures.



Table 6-16-1 Descriptive Analysis of Internal Business Measures

Statements	The level of use Percentages%			Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
	1/2	3	4/5			PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
(InBes 1)	4.6	28.2	39.3	3.166	1.258	4.386	2.905	2.400	3.315	2.692	2.703	3.551	3.385	2.889
(InBes 2)	25.8	23.3	50.9	3.417	1.241	4.250	3.324	2.756	3.460	3.282	3.405	3.427	3.440	3.389
(InBes 3)	28.8	23.9	47.2	3.337	1.233	4.341	3.041	2.844	3.403	3.128	3.135	3.506	3.407	3.250
(InBes 4)	19.0	28.2	52.8	3.509	1.146	4.295	3.541	2.689	3.774	2.667	3.108	3.843	3.758	3.194
(InBes 5)	27.0	30.7	42.3	3.184	1.079	3.818	3.041	2.800	3.323	2.744	3.054	3.292	3.242	3.111
(InBes 6)	28.8	27.0	44.2	3.215	1.132	3.932	3.041	2.800	3.363	2.744	3.054	3.348	3.264	3.153
(InBes 7)	26.4	29.4	44.2	3.288	1.169	3.205	2.946	3.933	3.315	3.205	3.514	3.101	3.121	3.500
InrBessMea	22.9	27.3	45.8	3.302	7.403	4.032	3.120	2.889	3.422	2.923	3.139	3.438	3.374	3.212

TSTBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. InBes1= Employees satisfaction, InBes 2= Service on time delivery, InBes 3= the number of transactions reflect performance, InBes 4= Quality service importance, InBes 5= Turnover for employees, InBes 6= Teamwork and coordination for employees, InBes 7= improve for employee productivity, InrBessMea =average of overall statements related to internal business process measures. 1/2=the textual summaries to aggregate strongly disagree and disagree responses which equal to "Not used", 3= a neutral response, 4/5= the textual summaries to aggregate strongly agree and agree responses which equal to "Yes used"

Table 6-16-2 Inferential Analysis of the Use of Internal Business Measures

Statements	One Way ANOVA For sub-groups in TOSTRCAT		Independent Sample T-test For sub-groups in TSBCAT		Independent Sample T-test For sub-groups in SIZCAT		Independent Sample T-test For sub-groups in TOWCAT	
	F	Sig	F	Sig	F	Sig	F	Sig
(InBes 1)	0.931	0.396	1.049	0.307	0.038	0.847	0.006	0.936
(InBes 2)	3.558	0.031	16.555	0.000	4.764	0.031	10.295	0.002
(InBes 3)	2.260	0.108	8.245	0.005	10.843	0.001	17.681	0.000
(InBes 4)	6.283	0.002	0.749	0.388	5.576	0.019	11.761	0.001
(InBes 5)	13.268	0.000	0.008	0.930	0.234	0.629	0.210	0.647
(InBes 6)	2.922	0.057	0.008	0.931	0.029	0.865	0.855	0.357
(InBes 7)	0.757	0.471	7.348	0.007	9.423	0.003	14.532	0.000
InrBessMea	6.188	0.003	0.104	0.747	0.450	0.503	2.895	0.091

TSTBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. InBes1= Employees satisfaction, InBes 2= Service on time delivery, InBes 3= the number of transactions reflect performance, InBes 4= Quality service importance, InBes 5= Turnover for employees, InBes 6= Teamwork and coordination for employees, InBes 7= improve for employee productivity, InrBessMea =average of overall statements related to internal business process measures. Independent Sample T-test is to compare means for two sub-groups of category/cases. The subjects should be randomly assigned to two sub-groups. One Way ANOVA is to produces an analysis of variance for one treatment factor to test the hypothesis that several means are equal. In addition to determining that differences exist among the means, may want to know which means differ by running a priori contrasts or post hoc tests. Used with no repeated measures; between-sub-groups design; when the independent variable has more than 2 levels.



6.2.5 Community Performance Measures

6.2.5.1 The Descriptive Analysis of the Use of Community Measures

The respondents were asked to indicate their views about the importance of use of community measures in their banks. To examine the importance of use of community measures for evaluating performance, five statements were included in this part of the questionnaire. These were: when there is dealing with public responsibility (statement 2.26), when there is consideration for community issues (statement 2.27), when there are efforts to improve bank’s public image (statement 2.28), when the community measures are important (statement 2.29), and when consideration for community regulations are paid (statement 2.30). Table 6.17.1 shows the percentages, descending means, and the average means of these statements to identify the extent of use of community measures.

The bold figures in table 6.17.1 indicate that the statement (2.29) about the importance of community measures is the highest mean score 3.337 resulting from about 45 per cent of respondents agreeing or strongly agreeing with it. Followed by the importance of community issues (statement 2.27) as the second highest means score 3.313 with as many as about 46 per cent of the aggregate responses of the participants. As shown in the table, the statement (2.26) the level of performance is reflected by dealing with public responsibility as the next mean score (3.276) with as many as about 43 per cent of the aggregate responses of the participants. At the same time, the statement (2.28) concerning improving the bank’s public image is the fourth mean score (3.258) based on the responses from Libyan banks, as many as 42 per cent either agreed or strongly agreed with this statement. However, about 26% of respondents do not have the same view regarding the previous statements as the important aspects of use of community measures. These results were held by the calculated average means of the sub-groups’ responses in four banking categories, table 6-17-1 shows that most sub-groups from different banking categories believe that the use of community measures is less important related to previous measures. However, the defender sub-group banks attach the highest level of importance of use of community measures compared to the other sub-groups with an average score 3.604. In addition, the table illustrates that the prospector and public banking sub-groups represent the second important type of use of community measures with average score of 3.491 and 3.381 respectively, followed by small, commercial, and



large sub-groups with average scores of 3.327, 3.285, and 3.193 respectively. Nevertheless, analyzer sub-group is the lowest with average score 2.778.

It can be noted from the table that the respondents consider that community measures are less important than financial measures (with mean of 3.254). This may provide a partial explanation as to why the sub-group banks are still depending on financial measures as the main source of information to compete and base performance evaluation. The results also show that some sub-groups consider the importance of community issues and importance of improving public image to be sufficient in respect of performance measures with a mean ranging from 3.086 to 3.313. This suggests that information about community is valued by the banking sub-groups as an important source of information to face competitive marketplaces. Furthermore, from the table, the results show that, on average, the use of community measures are adopted in about 42 per cent of the banking sub-groups with an average score of 3.254. Otherwise, 27 per cent of the respondents indicated that they do not see the necessity to use community measures to evaluate performance. Table 6-17-1 indicates that about 43 per cent of the sub-groups from different banking categories, on average, are a slightly convinced about listed statements which related to the use of community measures in their performance measurement systems. In contrast, the analyser sub-group banks tend to have slight level of dissatisfaction with community measures with a mean of 2.778.

#### **6.2.5.2 Inferential Analysis of the Use of Community Measures**

Table 6-17-1 reveals that the means of the importance of the use of community measures are different in all sub-groups. To analyze whether these differences are significant among the surveyed banks, One Way ANOVA and independent T-test (Inferential tests) were used to determine whether the means of statements differ from sub-groups in each banking category. Table 6-17-2 shows results of tests for all sub-groups as follows:-

##### **A- Independent Sample T-test:**

The T-test was performed to identify whether the means of sub-groups banks (The subgroups of type of business category, sub-groups size of bank category, and sub-groups the type of ownership category) differ from sub-groups in overall statements of the use of community measures. Table 6-17-2 shows that there are similar results



regarding the above statements namely there are not significant differences between all the sub-groups means ( $P = 0.069, 0.257, 0.277$ ), therefore,  $H_0$  is accepted, which means that there is not a significant difference regarding the use of community measures.

### B- One Way ANOVA:

The One Way ANOVA was undertaken to test whether the means of sub-groups from the type of business strategy orientation category are a significant difference. The results in table 6-17-2 demonstrate that there are significant differences between all sub-groups means ( $P = 0.000$ ). Therefore, the hypothesis  $H_0$  is rejected, which suggests the sub-groups from the type of business strategy have a significantly different level of use of community measures in their performance measurement systems. Results show that community measures were applied in 42 per cent of participant banks. Comparison tests (One Way ANOVA and T-test) findings show that these measures are significantly different among sub-groups from only the business strategy category, otherwise, these measures are not significantly between all sub-groups within remainder categories.

This finding can be expected from the majority of researchers in this subject area, due to the characteristics of the banking sector being not related to community issues like pollution and green issues. In addition, the consideration of community subjects may be because the majority of Libyan banks are related to the government that focused organisations to recognize community issues. This also might be because some new community regulations have been implemented by the Libyan government (see for example; Alkizza, 2005), which is consistent with what Ashford and Meima (1993) stated about increasing pressure from the government, proactive organisation and other stakeholders for information on organisations' community performance.

These results are somewhat also consistent with other studies such as Epstein and Manzoni (1998), Young and Welford (1998). Epstein and Manzoni (1998) states that the majority of organisations do not give serious consideration for their environmental and community liabilities in either internal decision making or external reporting. However, at the present time, the rapid increase in environmental and community issues like cost has caused firms to begin to integrate these



considerations into management decisions at all levels and they started measuring and reporting these issues. Roberts (1994) points out that environmental measures have been one of the routes followed by many organisations in the U.S and Europe to improve their impact on the environment. Finally, according to Epstein and Manzoni (1998) these measures should be developed and used by the business community if organisations seek sustainability.



Table 6-17-1 Descriptive Analysis of the Use of Community Measures

Statements	The level of use Percentages%			Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
	1/2	3	4/5			PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
(Com1)	27.6	28.8	43.6	3.276	1.1826	3.455	2.784	3.611	3.282	3.256	3.392	3.180	3.132	3.458
(Com2)	26.4	27.6	46.0	3.313	1.1942	3.568	2.797	3.411	3.323	3.282	3.392	3.247	3.209	3.444
(Com3)	27.0	30.7	42.3	3.258	1.1471	3.455	2.784	3.244	3.282	3.179	3.351	3.180	3.143	3.403
(Com4)	23.9	31.3	44.8	3.337	1.1718	3.545	2.757	3.089	3.298	3.462	3.500	3.202	3.154	3.569
(Com5)	29.4	34.4	36.2	3.086	1.0738	3.432	2.770	3.267	3.242	2.590	3.000	3.157	3.132	3.028
ComMea	26.9	30.6	42.6	3.254	1.085	3.491	2.778	3.604	3.285	3.154	3.327	3.193	3.132	3.458

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO = prospector strategy sub-group banks, ANA = analyst strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. Com1= Public responsibility reflect to performance, Com2= Community issues importance, Com3= impact Improving banks' image on performance measure, Com4= Community measures importance, Com5= Community regulations, ComMea =average of overall statements related to community measures. 1/2=the textual summaries to aggregate strongly disagree and disagree responses which equal to "Not used", 3= a neutral response, 4/5= the textual summaries to aggregate strongly agree and agree responses which equal to "Yes used"

Table 6-17-2 Inferential Analysis of the Use of Community Measures

Statements	One Way ANOVA For sub-groups in TOSTRCAT		Independent Sample T-test For sub-groups in TSBCAT		Independent Sample T-test For sub-groups in SIZCAT		Independent Sample T-test For sub-groups in TOWCAT	
	F	Sig	F	Sig	F	Sig	F	Sig
(Com1)	15.858	0.000	0.009	0.923	1.302	0.256	0.868	0.353
(Com2)	16.068	0.000	0.426	0.515	0.003	0.960	0.006	0.937
(Com3)	15.083	0.000	0.114	0.736	1.537	0.217	0.870	0.352
(Com4)	24.571	0.000	0.080	0.778	0.332	0.566	0.894	0.346
(Com5)	6.535	0.002	2.413	0.122	0.310	0.578	0.237	0.627
ComMea	17.691	0.000	6.965	0.069	1.294	0.257	1.191	0.277

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT = Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO = prospector strategy sub-group banks, ANA = analyzer strategy sub-group banks, DEF = defender strategy sub-group banks, COM = commercial sub-group banks, SPE = specialised sub-group banks. Com1 = Public responsibility reflect to performance, Com2 = Community issues importance, Com3 = impact Improving banks' image on performance measure, Com4 = Community measures importance, Com5 = Community regulations, ComMea = average of overall statements related to community measures. Independent Sample T-test is to compare means for two sub-groups of category/cases. The subjects should be randomly assigned to two sub-groups. One Way ANOVA is to produce an analysis of variance for one treatment factor vs test the hypothesis that several means are equal. In addition to determining that differences exist among the means, may want to know which means differ by running a priori contrasts or post hoc tests. Used with no repeated measures, between-sub-groups designs, when the independent variable has more than 2 levels.



### 6.3 The Applications of Performance Measures

This section shows the findings of the descriptive analysis of the third part of the questionnaire which collected data from all sub-groups within four banking categories about the views of respondents regarding the importance of performance measures to long-term organisational success and their usage in performance measurements and evaluation of performance. This is to achieve the third research objective:

- 3) To assess the function/purposes of using financial and non financial measures for evaluation of performance and different purposes.

To achieve this, the respondents were asked to indicate their use of performance measurement, in terms of financial and non-financial measures. These measures are represented by financial, customer, learning and innovation, internal business and community measures. Descending means were used to examine the importance of financial and non-financial measures categories to long-term organisational success, and their use in performance measurements and evaluation. Based on a five-point scale, the descriptive analysis and the discussion are presented in the following sub-sections.

#### 6.3.1 Importance to Long-Term Organisational Success:

In order to assess whether financial or non financial measures are important in the long term organisational success, the respondents were asked to indicate the importance of financial and non financial performance measures as drivers of organizational success. Table 6-18 shows that financial measures (mean 3.184), which refer to monetary metrics were ranked as the most important performance measures. In contrast, non financial performance measures relating to customers and learning and innovation measures were ranked as the most important among non financial performance measures (means = 3.073 and 3.001 respectively). However, internal business and community measures were ranked as less or not important (means = 2.687 and 2.288). In addition, the table 7-18 shows that the same order can be seen among all sub-groups in all banking categories.



**Table 6-18 Descending Means Reflect Importance of Performance Measures as Drivers of Long Term Organisational Success**

	Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
			PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
<b>FinMea</b>	<b>3.184</b>	1.101	4.000	3.135	3.067	3.403	3.000	2.973	3.360	3.319	3.014
<b>CusMea</b>	<b>3.073</b>	.8503	3.222	2.919	2.818	3.308	2.154	2.899	3.284	3.194	2.978
<b>LeaInnMea</b>	<b>3.001</b>	.9783	3.333	2.770	2.295	3.795	2.339	2.270	3.189	3.208	2.275
<b>InrBessMea</b>	<b>2.687</b>	.9892	3.114	2.527	2.822	2.984	2.487	2.230	2.921	3.014	2.890
<b>ComMea</b>	<b>2.288</b>	.6824	2.341	2.257	2.289	2.331	2.821	2.973	2.337	2.236	2.330

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. FinMea= Financial measures. CusMea=Customer measures. LeaInnMea=Learning and innovation measures, InrBessMea =Internal business process measures, ComMea =Community measures, (1 = Not at all important, 2 = unimportant, 3 = Neither important nor unimportant, 4 = important, 5= very important) (1 = Not at all important, 2 = unimportant, 3 = Neither important nor unimportant, 4 = important, 5= very important)

These results indicate that all sub-group banks are still aware of financial measures as an important source of information to achieve bank objectives; beside they are in line with the increasing importance of including some measures of non financial measures-customer and learning and innovation- in performance measurement systems. This result is supported by some authors (e.g. Kaplan, 1984 and Guenther and Gruening, 2002).

### 6.3.2 Managerial Performance Evaluation

To assess the uses of diverse measures for evaluation of managerial performance, the respondents were asked to point out the extent to which financial and non financial measures are used to evaluate managerial performance. Table 6-19 demonstrates the means of performance measures, which reflects the use of each performance measure to evaluate managerial performance. It could be noted from the table 7-19 that the Libyan banks still depend on financial measures as the main source to evaluate managerial performance with a mean of 3.478, while non financial measures namely customer and learning and innovation measures tend to be used to some extent (with mean 2.810 and 2.834 respectively) to evaluate the managerial performance. On the contrary internal business and community measures tend to be rarely used with a mean 2.233 and 2.025 respectively.

Comparing the sub-groups of banks as shown in table 6-19 it could be noted that all sub-groups use financial measure to evaluate managerial performance more than use of other non financial measures. In addition, prospector, commercial, large and



private sub-group banks tend to use financial and customer and innovation and learning measures to evaluate managerial performance.

**Table 6-19 Descending Means for the Use of Deserve Performance Measures for Evaluation Managerial Performance**

	Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
			PRO	ANA	DEF	COM	SPE	SB	IB	PRI	PUB
<b>FinMea</b>	3.478	.7961	3.568	3.351	3.600	3.460	3.538	3.541	3.427	3.462	3.500
<b>CusMea</b>	2.810	.9972	2.818	2.919	2.622	2.815	2.795	2.838	2.787	2.780	2.847
<b>LeaInnMea</b>	2.834	.8719	2.636	2.919	2.889	2.798	2.949	2.946	2.742	2.758	2.931
<b>InrBessMea</b>	2.233	.9314	2.295	2.216	2.200	2.226	2.256	2.203	2.258	2.220	2.250
<b>ComMea</b>	2.025	.8311	2.136	2.000	1.956	2.065	1.897	1.946	2.090	2.088	1.944

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. **FinMea**= Financial measures.**CusMea**=Customer measures. **LeaInnMea**=Learning and innovation measures, **InrBessMea** =Internal business process measures, **ComMea** =Community measures. Respondents were asked to indicate the use of performance measures for managerial evaluation on 5-point scale (1 = Not at all used, 2 = To a little extent, 3 = Neither to a little nor to some extent, 4 = To some extent, 5= To a great extent)

This result is similar to the ideas suggested by some researchers (e.g. Chenhall and Morris, 1986; Otley, 1999) in which they indicate that targets should be set for both financial and non financial performance measures in order to evaluate managerial performance.

### 6.3.3 Problem Identification

To analyze the use of different measures for identifying the problem and developing plans, the respondents were asked to indicate the extent to which their banks use performance measures for identifying problems and improvement opportunities and developing action plans.

**Table 6-20 Descending Means for the Use of Deserve Performance Measures for Identifying Problem and Developing Plans**

	Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
			PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
<b>FinMea</b>	3.883	.7965	3.773	3.824	4.089	3.839	4.026	4.014	3.775	3.868	3.903
<b>CusMea</b>	2.798	.8252	2.614	2.784	3.000	2.726	3.026	3.068	2.573	2.637	3.000
<b>LeaInnMea</b>	2.890	1.191	2.864	2.851	2.978	2.774	3.256	3.243	2.596	2.747	3.069
<b>InrBessMea</b>	2.227	.7227	2.159	2.203	2.333	2.185	2.359	2.419	2.067	2.099	2.389
<b>ComMea</b>	1.945	.8259	1.932	1.892	2.044	1.952	1.923	2.095	1.820	1.868	2.042

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. **FinMea**= Financial measures.**CusMea**=Customer measures. **LeaInnMea**=Learning and innovation measures, **InrBessMea** =Internal business process measures, **ComMea** =Community measures. Respondents were asked to indicate the use of performance measures for indenting problems on 5-point scale (1 = Not at all used, 2 = To a little extent, 3 = Neither to a little nor to some extent, 4 = To some extent, 5= To a great extent)



Table 6-20 shows the means for performance measures to identify problems and improvement opportunities. The table shows that the financial measures with mean 3.883 is the most important category that is used to identify problems and improvement opportunities and developing plans whereas non financial measures namely customer, learning and innovation measures are occasionally utilized to identify problems and improvement opportunities and developing plans with mean of 2.798 and 2.890 respectively.

In contrast, internal business and community measures tend to be not employed to identify problems with means 2.227 and 1.945. Moreover, from the table 6-20, it can be seen that the sub-groups have the same tendency to use financial measures more than non financial measures with a higher level for prospector, private, large and commercial sub-groups banks than other sub-groups. This result supports the idea suggested by Banker et al, (2004) in which they indicate that organisations should use both financial and non financial performance measures to improve decision making and problem solving.

**6.3.4 Financial Reward System**

The respondents were asked to indicate the extent to which their banks use each of the five measures in their financial reward system. Table 6-21 shows the descending means linking performance measures to financial reward system.

The following table shows that the financial category are the most important measures category used to reward managers with a mean of 3.209. In terms of non-financial measures, the results show that the customer, learning and innovation measures (mean = 2.387 and 2.699 respectively) are the only non-financial measures that are little used to reward managers. The results also show that, on average, internal business, and community measures tend not to be linked to the financial rewards system in their business units. Likewise, It can be observed among all sub-groups banks that the same tendency by different level of the use of these measures in financial reward system exists.

These results suggest that the responding banking sub-groups still depend mainly on the financial performance information as the main source to reward managers in terms of managerial compensation.



**Table 6-21 Descending Means Linking Performance Measures Categories to Financial Reward System**

	Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
			PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
<b>FinMea</b>	<b>3.209</b>	.9904	3.000	3.243	3.356	3.129	3.462	3.446	3.011	3.044	3.417
<b>CusMea</b>	<b>2.387</b>	.7960	2.341	2.324	2.533	2.339	2.538	2.554	2.247	2.319	2.472
<b>LeaInnMea</b>	<b>2.699</b>	.9695	2.591	2.649	2.889	2.621	2.949	2.959	2.483	2.527	2.917
<b>InrBessMea</b>	<b>1.908</b>	.6649	1.955	1.851	1.956	1.887	1.974	1.973	1.854	1.901	1.917
<b>ComMea</b>	<b>1.718</b>	.5933	1.727	1.770	1.622	1.742	1.641	1.689	1.742	1.736	1.694

TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. **FinMea**= Financial measures.**CusMea**=Customer measures. **LeaInnMea**=Learning and innovation measures, **InrBessMea** =Internal business process measures, **ComMea** =Community measures. Respondents were asked to indicate the use of performance measures for reward system on 5-point scale (1 = Not at all used, 2 = To a little extent, 3 = Neither to a little nor to some extent, 4 = To some extent, 5= To a great extent)

Despite the increasing use of non-financial-customer, and learning and innovation measures in managerial compensation (Ittner et al., 1997). Thus, it can be concluded that the respondents are still depending on traditional financial performance measures as the predominant measure to reward managers. The findings do not therefore support the recommendations suggested by several researchers (e.g. Banker et al.,2000) to link the non-financial performance measures with executive compensation plans

### 6.3.5 Measurement Quality

In order to appraise the measurement quality of each measure, the respondents were asked to indicate how well their banks measure performance in the five performance measures categories. Table 6-22 shows the descending means relating to the respondents' perceptions of how well their banks measure performance (i.e. measurement quality) within each performance measure category. It can be noted from the table that respondents consider that measurement quality is high (with a mean of 3.534) in respect of the financial measures. This may provide a partial explanation as to why the responding sub-groups banks still depend on financial information as the main source of information to compete and base strategic decisions.

The results also show that their banks consider the quality of information to be sufficient in respect of customer and learning and internal measures with a mean 2.865 and 2.546.



Table 6-22 Descending Means in Relation to Measurement Quality within Performance Measures Categories

	Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
			PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
FinMea	3.534	.9512	3.591	3.581	3.400	3.516	3.590	3.514	3.551	3.593	3.458
CusMea	2.865	.9783	3.159	2.919	2.489	2.944	2.615	2.514	3.157	3.000	2.694
LeaInnMea	2.546	.8692	2.432	2.432	2.844	2.419	2.949	2.797	2.337	2.374	2.764
InrBessMea	2.092	.6649	2.250	2.149	1.844	2.129	1.974	1.865	2.281	2.220	1.931
ComMea	2.184	.9043	2.636	2.189	1.733	2.331	1.718	1.811	2.494	2.505	1.778
TSBCAT = Type of Business category, OWCAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. FinMea= Financial measures.CusMea=Customer measures. LeaInnMea=Learning and innovation measures, InrBessMea =Internal business process measures, ComMea =Community measures.											

This suggests that information about customer, learning and innovation are valued by the responding sub-groups as an important source of information to face competitive marketplaces. In addition, banks do not depend on internal business and community information to measure performance. Thus, it can be concluded that the respondents agreed on the ability of financial and some non-financial performance indicators to provide accurate and meaningful measures. This result is consistent with the argument raised by several researchers (e.g. Chenhall and Morris, 1986; Ittner and Larcker, 2001) to include non-financial performance measures in the performance measurement systems in order to provide information that reflects the attributes of these indicators.

6.4 Further Discussion

This study investigated performance measurement in Libyan’s banking industry. The research questions in this study consisted of two parts: first is to explore what type of financial and non-financial measures are used in performance measurement systems, by comparing sub-groups within each one of four banking categories. The second is to find out, in which purposes (i.e. the importance of financial and non-financial performance categories to long-term organisational success, and their use in performance measurements and evaluation) are financial and non-financial measures used by comparing between sub-groups within each one of the four banking categories.

The findings of this research about the type of financial and non financial performance measures used, seem to be consistent with suggestion by Miles and Snow (1978) that prospector and analyser banks are expected to focus more on non-financial rather than financial measures, while defender banks are more likely to



depend on financial measures. This finding is supported by Byles and Labig (1996) who found that defenders set more significance on financial measures than do prospectors. The findings are also in agreement with Ittner et al., (1997), who found that "the relative weight placed on non-financial measures is greater in firms following an innovation orientated 'prospector' strategy than in firms following a cost leader or 'defender' strategy, in that way suggesting that an organisation's competitive strategy is perhaps a crucial determinant of the performance measures". This is also consistent with the findings of many other researchers who have used the Miles and Snow typologies to examine the impact of different strategic orientation in their studies (Byles et al., 1996; Castle, 2003).

Miles and Snow (1978) found that defenders tend to focus narrowly on their target market. In contrast, prospectors and, to lesser extent analysers, take a broad view of the target market. This seems to clarify the finding that public banks report less dependence on non-financial measures than private banks. Public banks, which are being in the majority of defenders, are focused on protecting their high market share from new entrants. In contrast, the private banks are prospectors and analysers and these findings emerge to be in harmony with the results of Byles et al., (1996) and Miles and Snow (1978) that prospectors be likely to be product and market pioneers. The findings of this research also seem to be consistent with suggestion Hussain and Gunsakaran, 2002 that commercial banks are more concerned about the opinion of shareholders, thus they are concerned about the overall improvement of business both financial and non-financial performances. However, specialised cooperative banks are not very concerned about improving the non financial measures (i.e. quality of services).

This study's findings indicate that there are no significant differences between commercial and specialised banks. The commercial banks placed greater importance on financial measures and relatively non-financial measures but, as the results indicate, specialised banks placed somewhat greater emphasis on financial measures than non financial measures. These results seem to be consistent with previous studies that the nature of business will tend to rely more on financial than non-financial information or vice versa (Brignall, 1997; Hussain and Gunsackaran, 2002;). This is reflected in the outcome from the interviews.

The particularities/characteristics (i.e. size, type, etc) have an effect on the use of non-financial performance measures as argued by Fitzgerald et al. (1991), Brignall



(1991), Hussain and Gunasekarn (2002) among others. The empirical findings of this study reveal that the size of a bank has significant effect on the use of financial and non-financial performance measures. Large sized banks seem to pay a high degree of attention to measuring and improving non financial performance measures in addition to financial ones rather than small sized banks. This result has supported by Fitzgerald et al. (1991), Brignall (1991), and Hoque and James (1998) who identified that organisational size that large organisation varies in terms of the use of performance measures from smaller ones, however it is not consistent with Hussain and Gunasekarn (2002), who found that the size of bank does not have such a significant impact on the use of non-financial performance measures in banks.

Libyan banks' openness that began in since 1999 and this study was conducted during a period when the banking industry remained in a highly uncertain economic, regulatory and commercial environment (Alkaziza, 2005). In that regard, the results in this study seem to be consistent with suggestions by the contingency perspective that external factors (e.g. environmental factors, such as political pressure, culture, industry characteristics, etc.) will affect the performance measurement system (Cobb & Heller, 1995).

In general, the aforementioned results (sections 6.4.1-6.4.5 and tables 6.18-6.22) regarding the dimensions of use of financial and non financial performance measures, are evidently corresponding to the growing importance of containing non-financial performance measures in the performance measurement systems. In this vein, Ittner and Larcker (1998) state that the extensive changes in the nature of business environment (e.g. intensity of competition, development of technology...etc) has motivated organisations to adopt and measure the new techniques for example nonfinancial measures which may lead to success in the new environment. Empirically, a study carried out by CIMA (1993) conclude that organisations adopt financial and non-financial performance measures because they indicate the right way for meeting changes in their environment. In these positions, managers need to be able to identify those procedures and activities that are possible to create value over the long term (Cumby and Conrod, 2001).

Therefore, it could be seen that Libyan banks have paid attention to the importance of financial and non-financial performance measures as drivers of long-term organisational success. This finding supports the idea suggested by several researchers (e.g. Kaplan, 1984; Guenther and Gruening, 2002), in which they point



out that banks should comprise both financial and non-financial performance measures in their performance measurement systems as drivers of the long-term success.

With regard to evaluate managerial performance, the aforementioned findings could be deduced that these financial; customer and innovation and learning measures are found to be the only performance measures that are moderately/extensively used to evaluate managerial performance. This suggests that the responding banks extensively set targets for financial, customer, innovation and learning performance measures. Consequently, the respondents agree with the idea of placing greater emphasis on using the same performance measures to evaluate managerial performance. This result is similar to the ideas suggested by several researchers (e.g. Chenhall and Morris, 1986; Otley, 1999) in which they indicated that targets should be set for both financial and non-financial performance measures in order to evaluate managerial performance.

With reference to identifying the problem and developing plans, the aforementioned results can be interpreted by comparing them to the responses obtained in subsection 6.4.5. This shows that the same performance measures (i.e. financial, customer, innovation and learning measures) that achieved high measurement quality were also used to identify problems and improvement opportunities and developing action plans. This indicates that when respondents consider that information quality is high they are more likely to use this information for identifying problems and improvement opportunities and developing action plans. However, this result supports the idea suggested by Banker et al. (2004), in which they indicated that organisations should use both financial and non-financial performance measures to improve decision-making and problem solving.

Regarding the use of financial and non financial measures as reward managers, the results suggest that the responding banks are still depending mainly on the financial performance information as the main source to reward managers in terms of managerial compensation. Despite the increasing use of non-financial performance measures in managerial compensation (Ittner et al., 1997), only innovation and learning performance measures appear to be moderately used to reward managers. Empirically, these results are very similar to Stivers et al., (1998), who reported that only financial and operational performance measures were linked to compensation.



Thus, it can be concluded that the responding companies are still depending on traditional financial performance measures as the predominant measure to reward managers. The findings do not therefore support the recommendations suggested by several researchers (e.g. Banker et al., 2000) to link the non-financial performance measures with executive compensation plans.

It can be noted from the above table that respondents consider that measurement quality is high in respect of the financial performance measures. This may provide a partial explanation as to why the responding banks are still depending on financial information as the main source of information to compete and base strategic decisions. The results also show that their banks consider the quality of information to be sufficient in respect of customer, innovation and learning performance measures. This suggests that information about customer, innovation and learning measures are moderate as an important source of information to face competitive marketplaces. Thus, it can be concluded that the respondents agreed on the ability of financial and non-financial performance measures to provide accurate and meaningful measures. This result is consistent with the argument raised by several researchers (e.g. Chenhall and Morris, 1986; Ittner and Larcker, 2001) to include non-financial performance measures in the performance measurement systems in order to provide information that reflects the attributes of these indicators. This is also similar to the results reported by the empirical work of Lingle and Schiemann (1996).

### 6.5 Summary

This chapter has presented the findings and discussion relating to the first, second and third objectives of the research. In particular, it has presented information about the sample banks used in this study (the first section of the questionnaire). Furthermore, descriptive findings relating to the importance of the use of financial and non financial performance measures, and inferential statistical results concerning comparison of the extent of use of performance measures in sub-groups of each banking category (the second section of the questionnaire) were highlighted. In addition, the nature, content and usage of the performance measures (the third section of the questionnaire). The responses to the remaining questions are mainly concerned with providing information relating to the contingent variables



influencing the nature and use of the performance measures. Therefore, this chapter has not attempted to provide descriptive information relating to these variables.

The above descriptive analysis and inferential analysis of data show that Libyan banks are relatively small compared with international banks, such as in the UK and the US. The majority of managers hold accounting degrees and other qualifications. Most respondents hold a Bachelor's degree (BSC.) accounting degree and have extensive work experience, which supported the reliability and credibility of the collected data.

The results reported in this chapter indicate that all banking sub-groups in Libyan banks have agreed to the importance and use of various performance measures. Financial measures are the most widely used measures among all Libyan banking sub-groups. Learning and innovation measures are the most prominent ones among non financial measures. The second most widespread non financial performance measures are Customer measures. At the third level of popularity are internal business measures such as training programmes. The less important measures are community measures.

The findings of inferential (comparison) tests in this chapter also revealed the degree of differences among sub-groups in the mentioned banking categories regarding the importance of use of performance measures, namely, there are different regarding uses of financial measures between all sub-groups within all banking categories. While the use of customer measures, there are some differences in sub-groups within two categories namely, type of business strategy and type of business categories. With regard to the use of learning and innovation measures there was only one type of business strategy category where there was a difference between the sub-groups. Concerning the use of internal business measures, the category of the type of ownership indicates that there is a difference between the sub-groups. With reference to the community measures, there is a difference between sub-groups in the type of business strategy category. However, no significant differences have been found among the remaining sub-groups regarding the use of performance measures. Approximately, all of the responding sub-groups operate performance measurement systems comprising of financial and same non-financial performance measures.



However, the findings indicate that there are differences between the importance of performance measures categories and their relative use in performance measurements and evaluation. It was observed that financial performance measurements are the dominant measures for the responding banks. In addition, non-financial performance measurements (i.e. customer and learning and innovation) had high usage rates whereas internal business and community had only a slight usage rates.



## **CHAPTER SEVEN**

### **PERFORMANCE MEASURES AND SELECTED CONTINGENT FACTORS: MEASUREMENT MODEL AND PEARSON CORRELATION ANALYSIS**



### **7.1 Introduction**

It was decided that the theoretical construct for research variables was operationalized based on previous studies. The measurement of these construct variables is essential to ensure the reliability and validity of the expected results in order to achieve the research objectives. It was stressed early that the balance of performance measures is applied in different ways, and that different interpretations exist as to what represents the use of performance measures in a performance measurement system. However, the descriptive findings of this study confirmed that sub-groups banks are using the performance measures in different ways.

The aim of this chapter is to analyse how the research variables are measured, and the procedures undertaken to establish the construct validity using exploratory factor analysis and to estimate the reliability using Cronbach Alpha coefficient. The first section presents the measurement of the research variables and the outputs of the exploratory factor analysis. Discussion of normality is shown in the second section. The third section checks the reliability and validity issues for dependent and independent variables. Correlation analysis for the use of performance measures “dependent variables” with contingent factors “independent variables” required for testing research hypothesis is shown in the fourth section. The last section presents a summary of this chapter.

### **7.2 Exploratory Factor Analysis**

Fabrigar et al, (1999) state that researchers must consider suitable theory and previous studies when they want to determine the relevant number of factors to retain, and they should try to predict the number and nature of factors. Exploratory Factor Analysis (EFA) is applied when researchers require to identify a set of latent factors from a larger number of observed variables (items/question scales). In addition, Baber et al (2002), as an example, suggest that there is evidence for utilising EFA in accounting studies. However, Bryman and Cramer (2001) stress that items/statements that use to measure a variable must be related as condition to use EFA. Results of correlation test show that statements used to measure dependent and independent variables, in the questionnaire, were inter-correlated. Therefore, EFA is suitable to be applied in this research.



EFA can be used for achieving multiple purposes, for instance, exploring a content area, structure a domain, evaluate the construct validity, map unknown concepts, make inferences, illuminate causal nexuses, screen or transform data, define relations, test hypotheses, formulate theories, control variables, and classify or reduce data (Peters, 2002). Although prior purposes are overlapping, this research will be using EFA for investigating relationships among survey statements that measures each variable. Pallant (2007) argues that the fundamental supposition of EFA is that there exists a number of unobserved factors, which present the correlations among different statements that measure a variable. In other words, EFA states that variables are determined by common correlated factors and uncorrelated factors. EFA determines these correlated factors and drop uncorrelated unique factors.

Pallant (2007) claims that EFA includes a variety of different techniques, the famous techniques are the Common Factor Analysis and Principal Components Analysis. The two techniques have very similar in functioning, however the main difference between them is about interpreted variance: The former examines only the common variance of the observed variables while the latter investigates the total variance, both common and unique.

Even though, the above techniques have shown the similar results, this research uses Principal Components Analysis for three reasons: Firstly, it is psychometrically sound and simpler mathematically (Stevens, 1996). Secondly, it is better in providing an empirical summary of data set (Tabachnick and Fidell, 1996). Finally, it avoids some potential problems with “factor indeterminacy” associated with factor analysis (Stevens, 1996).

Therefore, the main purposes for applying the EFA are to check the reliability of data, and to reduce the number of scales statements and to determine dependent and independent variables, which, in turn, would help to evaluate the validity. EFA would be used in three steps as follows (Pallant, 2007):

- 1- To assess the suitability of the data for EFA by using some specific statistical measures, namely Bartlett’s test of sphericity which must be significant (  $p < 0.05$ ), and Kaiser-Meyer-Olkin (KMO) that measures the sample adequacy (it should be greater than 0.60).



- 2- To extract variables that best presents the interrelation among the set of statements/items.
- 3- To rotate the extracted variables, which do not change the underlying solution, rather helps in interpreting the results.

7.2.1 Exploratory Factor Analysis for Dependent Variables

Based on the two dimensions of financial and non financial measures, it was decided to separate the statements (2.1-2.30) into five groups. The first six items (2.1-2.6) attempt to determine the use of financial measures, statements (2.7-2.11) go to calculate the use of customer measures, the next seven statements (2.12- 2.18) try to measure the use of learning and innovation measures, while the following seven statements (2.19- 2.25) try to determine the use of internal business measures, and the last five statements (2.26- 2.30) attempt to assess the use of community measures.

Tabachnick and Fidell, (1996) and Pallant, (2007) argue that in order to check the suitability of the data for EFA, two tests should be applied. First test is Barlett’s test of sphericity which must be significant ( $p<0.05$ ) to be appropriate. The second is the KMO index that ranges from 0 to1, which suggested being up than 0.6 as the minimum value for good factor analysis.

Table 7.1 KMO and Bartlett's Test of Dependent Variables

		30 Statements that measure the dependent variables
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		.748
Bartlett's Test of Sphericity	Approx. Chi-Square df Sig.	4572.210 435 .000

Table 7.1 shows the result of Barlett’s test of sphericity and KMO measure of sampling adequacy for all statements which will shape the dependent variables. As shown in table 7.1, figures fulfil the essential conditions, the Bartlett's test of sphericity is significant ( $P < 0.001$ ), and the KMO measure of sampling adequacy is acceptable (0.748). Therefore, it could be concluded that EFA is appropriate and suitable due to the data of this research regarding dependent variables is at acceptable levels.



Pallant, (2007) points out that there are two main criteria to determine the number of factors that represent the data, these options are available in SPSS package: Firstly, the SPSS provides an option to extract the number of principal components (factors) according to Eigen-value, which in the case of the correlation matrix amounts to identifying factors with variances more than one. So, only factors that have Eigen-value above one are considered. Secondly, choosing the default option that is to begin, researcher sets five components to be extracted (set number of factors to 5) which have an Eigen-value of more than one. This study selects the latter option due to the number of dependent factors which are already known.

The results of EFA<sup>1</sup> identified five factors for performance measures “dependent variables”. The following sections present the results of EFA for factors that have been used in this study. The following discussion will determine the extracted factors to be retained which represent the dependent variables. In addition, after determining the number of extracted factors, they will be rotated in order to assist interpreting them. Rotation does not change the underlying solution, it simply helps to provide further interpretation of the results.

Principal Component Analysis identifies five factors with eigenvalues greater than 1 and explains almost 65% of the variance. So, this five-factor model was considered the best demonstration of the data that each of performance measures’ statements was grouped in one factor. Secondly, the component matrix result shows that most of the statements are grouped on the five factors. These factors are coded as follows: Factor 1 is Innovation and learning measures (INNOV), factor 2 is community measures (COMM), factor 3 is financial measures (FINAN), factor 4 is internal business measures (INTRBUS), and factor 5 is customer measures (CUSTOM).

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<sup>1</sup> To assess the exploratory factor analysis (EFA), five commonly used assumptions were followed (Hair et al., 1998; Field, 2000): Sampling adequacy (Kaiser-Meyer-Olkin-KMO measure greater than 0.5); the minimum eigen value for each factor to be one; considering the sample size, factor loading of .40 for each item was considered as the threshold for retaining items to ensure greater confidence; the determinant of the correlation matrix (more than 0.00001); varimax rotation was used since it is a good general approach that simplifies the interpretations of factors (Field, 2000, p. 449). Once the number of factors have been determined, the next step is to try to interpret them. Statistical Package for Social Sciences (SPSS) shows you, which variables clump together. From your understanding of the contents of variables (and underlying theory and past research), it is up to you to propose possible interpretations (Pallant, 2001, p. 154).



**Table 7.2 Rotated Factor Matrix for Performance Measures (dependent Variables)**

Performance measures' statements	Factors				
	F1	F2	F3	F4	F5
	INNOV	COMM	FINAN	INTRBU S	CUSTO M
2.1 Financial figures importance			.707		
2.2 Financial targets achievement			.655		
2.3 Financial target and promotion			.511		
2.4 Financial ratios importance			.704		
2.5 Financial figures and performance			.850		
2.6 Financial figures and information source			.845		
2.7 Customer reactions					.814
2.8 Customer complaints					.812
2.9 Customer satisfaction					.738
2.10 Customer expectations					.803
2.11 Customer Loyalty					.345
2.12 Acquiring modern IT	.848				
2.13 Create new idea	.573				
2.14 Monitoring competitors	.824				
2.15 Identifying new market	.840				
2.16 Benchmarking competitors	.523				
2.17 Training courses for employees	.426				
2.18 Updating databases	.838				
2.19 Employees' satisfaction				.625	
2.20 Delivery on time				.665	
2.21 Transactions reflect performance				.720	
2.22 Quality and performance				.615	
2.23 Turnover for employees				.735	
2.24 Teamwork and coordination for employees				.771	
2.25 Improving employees productivity				.407	
2.26 Public responsibility		.932			
2.27 Perceive Public image and community involvement		.893			
2.28 Importance of community issues in measure performance		.929			
2.29 Importance of community measures		.870			
2.30 Community regulations		.874			
<b>Eigen-value</b>	7.235	5.348	3.327	2.014	1.648
<b>Percent of Variance</b>	24.118	17.826	11.091	6.714	5.493
<b>Percent of Cumulative</b>	24.118	41.944	53.035	59.749	65.242
<b>Extraction Method:</b> Principal Component Analysis. <b>Rotation Method:</b> Varimax Kaiser Normalisation. The number of factors to be determined by choosing the SPSS system default option that is considers all factors with Eigen Values one or more.					

Table 7.2 indicates the results of five factors solution, the factor loadings were considerable, ranging from 0.426 to .0893. In addition, figures in the columns explain the correlations between statements and factors. Statements which have correlations with more than one factor, the rule is to include the statement with the factor that has the highest correlation. However, a few statements do not have correlation with factors, so they will be excluded for reliability and validity reasons.



In line with this statement no 2.11 in customer measures statements was excluded for that reason. The results of EFA in table 7.2 conclude that there are five factors that represent the dependent variables, these factors are financial, customer, learning and innovation, internal business, and community measures.

### **7.2.2 Exploratory Factors analysis for Independent Variables**

According to the dimensions of contingent factors, it was decided to separate their statements (4.1-4.28) into six groups. The first four statements (4.1-4.4) attempt to measure the severity of competition faced and its influence on performance measures, the next five statements (4.5-4.9) try to measure the organisational structure represented by centralisation and its impact on performance measures, the next five statements (4.10-4.14) aim to determine the adoption of modern managerial techniques namely the use of total quality management, then the following five statements (4.15-4.19) seek to assess oriented strategy, whereas the next five statements (4.20-4.24) are used to find the impact of environmental uncertainty on performance measures, and the last four statements (2.25-2.28) are employed to evaluate the effect of using advanced technology on the use of performance measures. In order to examine the appropriateness of data for using EFA, as mentioned early, Pallant, (2007) suggest two main test that should be used to check the suitability of data of EFA, namely: Barlett's test of sphericity, and KMO index.

Table 7.3 shows the results for Barlett's test of sphericity and KMO index measure of sampling adequacy for independent variables' statements. As can be seen in the table the figures express the statements are at an acceptable level, consequently, EFA is suitable to be utilized for determining the independent variables in this construct.

To determine how many factors are extracted which represent independent variables, two options can be applied: extract the number of principal components (factors) according to Eigen-value, which in the case of the correlation matrix amounts to identifying factors with variances more than one.



Table 7.3 KMO and Bartlett's Test of Independent Variables

		28 Statements that measure the independent variables
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		.698
Bartlett's Test of Sphericity	Approx. Chi-Square	2856.978
	df	378
	Sig.	.000

So, only factors that have Eigen-value above than one are considered, alternatively, choosing the default option that is to begin, the researcher sets five components to be extracted (set number of factors to 6) which are, of course, had Eigen-value more than one (Pallant, 2007). Therefore, this study again selects to determine the number of factors due to the number of contingent factors “independent variables” were already known from previous studies in the field.

The results of EFA categorize six variables that represent the contingent factors “independent variables”. The following discussion will determine the extracted factors to be retained which represent the dependent variables. In addition, extracted factors will be rotated in order to assist interpreting them. The rotation for factors does not affect or change the underlying solution, but it just helps to provide further interpretation of the results. The loadings of EFA create six variables in a clear manner. These six factors are extracted as follows: the first factor is strategy (STRA). The use of total quality management techniques is the second factor (TQM) while the third factor represents the adoption of technology (TECH).

Environmental uncertainty (EU) is shown as the fourth factor whereas the fifth factor represents the organisational structure “centralisation” (CENTR). Finally, the sixth factor is the level of competition (COMP). Furthermore, Principal Component Analysis identifies six factors with Eigen-value greater than one and accounts for almost 64% of the variance. This six-factor model were considered the best representation of the data in that different contingent factors’ statements were loaded saliently only on one factor.

Table 7.4 reveals the results of six factors solution, the factors loadings were substantial, ranging from 0.417 to 0.896, these figures show the correlations between statements and factors. Statements that have correlations with more factors,



the rule is to comprise the statement with factor which has the largest correlation. On the other hand, some statements have been excluded as they do not shape correlation with factors.

**Table 7.4 Rotated Factor Matrix for Contingent Factors (Independent Variables)**

Contingent factors' statements		Factors					
		F1	F2	F3	F4	F5	F6
		STRA	TQM	TECHN	PEU	CENTR	COMPT
4.1	Competition severity						.846
4.2	Competition importance						.856
4.3	Price competition						.542
4.4	Competition & non financial measures						.417
4.5	Centralization importance					.714	
4.6	Centralization & performance measures					.780	
4.7	Centralization's effect on financial measures					.715	
4.8	Centralization & bank's goals					.604	
4.9	Centralization & non financial measures					.511	
4.10	Rewarded Employees for quality		.608				
4.11	Improving quality of services		.795				
4.12	Benchmarking quality		.835				
4.13	Effectiveness of Employee teams		.784				
4.14	Participation of functions in process		.644				
4.15	Strategies importance	.885					
4.16	Short and long term strategies	.865					
4.17	Strategies & financial plan	.896					
4.18	Strategies & non financial measures	.695					
4.19	Strategies' effects on innovation	.876					
4.20	EU & banking industry				.878		
4.21	EU & performance measures				.581		
4.22	EU & financial target				.545		
4.23	EU & non financial measures				.726		
4.24	EU & decision making				.816		
4.25	Technology importance			.753			
4.26	Technology update			.850			
4.27	Technology & performance measures			.690			
4.28	Technology & non financial measures			.861			
<b>Eigen-value</b>		5.056	3.613	2.710	2.658	2.226	1.765
<b>Percent of Variance</b>		18.058	12.90	9.678	9.493	7.949	6.305
<b>Percent of Cumulative</b>		18.058	30.96	40.638	50.13	58.080	64.385
<b>Extraction Method:</b> Principal Component Analysis. <b>Rotation Method:</b> Varimax Kaiser Normalisation. The number of factors to be determined by choosing the SPSS system default option that is considers all factors with Eigen Values one or more							

Table 7.5 summarises the EFA findings for dependent and independent variables. The results show that five dependent variables and six independent variables are extracted. This is in line with what was derived from the broader literature on



performance measurement techniques that indicate that these variables are associated with variation in the use of performance measures. Thus, EFA provided supported evidence for this choice and that these variables are of paramount importance to performance measures. In this research EFA is used to reduce the large number of statements that shape/build the performance measures categories (dependent variables) and contingent factors (independent variables), EFA could be applied for this purpose with the knowledge that the meaningful variation in the original data has not been lost. In addition, EFA helps in simplifying the very complicated and correlated nature of statements that form the variables in order to have a smaller number of unrelated factors that better fit in the correlation and regression analysis, in other words EFA is needed to transform data to meet the assumptions of other techniques such as correlation and regression analysis.

Table 7.5 A Summary of EFA Results

Variables	No of statements	No of Factors	Percentage of variance	Extracted factors
Dependent variables	30 statements	5 Factors	65%	Financial measures
				Customer measures
				Learning and innovation measures
				Internal measures
				Community measures
Independent variables	28 statements	6 Factors	64%	Competition
				Centralisation
				Strategy
				Total quality management technique
				Environmental uncertainty
				Technology

Finally, it is worth noting here that one factor of independent variables, organisational size, will not be extracted from EFA. This factor was identified by asking the respondents to state the approximate total of assets in their banks. The factor aims therefore to deal with as a categorical variable which is used as intervening variables to divide the sample themselves into small and large banks.

7.3 Normality of Research Variables

Table 7.6 presents the descriptive statistics for the research variables (dependent and independent) relating to the set of hypotheses to examine the relationship between the contingent variables and the use of financial and non financial measures. The



table includes the skewness<sup>2</sup> and kurtosis<sup>3</sup> values to check for normality<sup>4</sup> of each variable. Consistent with Hair et al. (2003), skewness values within the range of -1 to +1 and kurtosis values within -3 to +3 indicate an acceptable range for normality whereas values falling outside the range of skewness and kurtosis indicate a substantial departure from a normal distribution. Results in tables 7.6 show that skewness and kurtosis values for all research variables fall in the acceptable ranges. So, it could be concluded that the data is approximately tract the normal distribution.

**Table (7.6) the normality for research variables**

Research Variables	Skewness -1 to +1	Kurtosis -3 to +3
Financial measures (FINAN)	-.771	.599
Customer measures (CUSTOM)	.194	-.771
Learning and innovation measures (INNOVM)	-.521	.792
Internal business measures (INTER)	.301	.964
Community measures (COMM)	-.396	-.584
Competition (COMPIT)	-.811	-.771
Centralization (CENTR)	.536	.637
Total Quality Management (TQM)	.116	-.969
Strategy (STRA)	.411	.513
Environmental uncertainty (PEU)	-.128	.845
Technology (TECH)	.054	.584

#### 7.4 Reliability And Validity

The reliability of measurements' statements in the questionnaire is determined by applying the Cronbach Alpha Coefficient for internal consistency of the scale (Pallant, 2007). Moreover, several conditions that previous research have been underlined regarding the use of reliability testing, which also conclude the acceptable level of Cronbach Alpha coefficient (Peters 2002), for example, the number of response categories (e.g. 5-point scale) and the number of items in the scale. Peters, (2002) and Pallant, (2007) find out that Cronbach Alpha of an average between 0.50-.070 is acceptable level for social research. Tables (7.7) and (7.8) show the results of Cronbach Alpha coefficient test for dependent and independent

<sup>2</sup> Skewness is a measure of symmetry of a distribution. A positively skewed distribution has relatively few large values and tails off to the right, and a negatively skewed distribution has relatively few small values and tails off to the left (Hair et al., 1998, p. 38).

<sup>3</sup> Kurtosis is a measure of the peakedness or flatness of a distribution when compared with a normal distribution. A positive value indicates a relatively peaked distribution, and a negative value indicates a relatively flat distribution (Hair et al, 1998, p. 37).

<sup>4</sup> Normality refers to the degree to which the distribution of the sample data corresponds to a normal distribution. Where normal distribution is a theoretical probability distribution in which the horizontal axis represents possible values of a variable and the vertical axis represents the probability of those values occurring. The scores on the variable are clustered around the mean in a symmetrical, unimodal pattern known as the bell-shaped or normal curve (Hair et al., 1998, p. 38).



variables respectively. The reliability coefficient (Alpha) for dependent variables, as shown in the table 7.7, is ranging from 0.742 to 0.895, which are within the acceptable level of reliability in social research. In addition, table 7.8 shows that the reliability coefficient (Alpha) for the independent variables constructs is ranging from 0.676 to 0.835, which show that the reliability is in the acceptable levels. Consequently, both the levels of reliability coefficients for the dependent and independent variables are within acceptable range for social research.

**Table (7.7) Cronbach Alpha coefficients for dependent variables construct**

Dependent Variables' statements	Cronbach's Alpha	N of Items
items construct for measuring the use of financial measures	.868	6
items construct for measuring the use of customer measures	.814	5
items construct for measuring the use of learning and innovation measures	.895	7
items construct for measuring the use of internal business measures	.742	7
items construct for measuring the use of community measures	.852	5

**Table (7.8) Cronbach Alpha coefficient for independent variables constructs**

Independent Variables' statements	Cronbach's Alpha	N of Items
Items for measuring the competition	.676	4
Items for measuring the organisational structure	.734	5
Items for measuring TQM	.835	5
Items for measuring strategy	.810	5
Items for measuring environmental uncertainty	.761	5
Items for measuring technology	.833	4

With regards to the construct validity of measures, Brown, (2000) confirms that exploratory factors analysis (EFA) namely "Varimax rotation" could be used to assess the validity of statements, which has been already done in pervious sections (7.1.1 and 7.1.2). EFA determines five factors for performance measures with Eigen-value greater than one, together explaining 65% of variation, whereas EFA creates six factors for contingent factors that may affect the use of performance measures with Eigen-value greater than one, together explaining 64% of the variation. In addition, results from principal component reflect that measures of constructs correlate more highly with their own statements than measures of other constructs being measured. According to Hair et al (1995) statements that have a factor loading more than 0.4 ought to be retained. However, statements that have not



accomplished the reliability and validity conditions may be excluded from the analysis (Peters, 2002). Therefore, the research constructs are valid.

Therefore, this study's aim is to use the questionnaire effectively, questionnaire's statements have been clarified, simplified and restructured, simultaneously, there was a need to combine these statements to extract a limited number of factors which represent the research variables. To achieve this aim, EFA and reliability tests were applied. A few statements were cancelled due to the fact that they fail to accomplish the condition of these two tests, which are recommended by key statistical writers such as (Field, 2005; Sekaran, 2000; Bryman and Cramer, 2001; Pallant, 2007).

Initially the scale began with 65 statements which proposed to obtain the attitudes and beliefs of the participants in Libyan banks. After that, the pilot of scale statements of questionnaire has been undertaken, in order to test the clarification, redundancy and simplification of the scale statements, as a result, 6 statements were deleted for these reasons. Next, the EFA and Cronbach Alpha tests were conducted to check the reliability and validity of the statements, consequently, one statement was cancelled. Furthermore, regarding external validity, Abernethy et al, (1999) state that the use of triangulation (multiple method and/or multiple sources of data) in survey-based studies could provide several benefits for example: improve the study's generalisation, and support the interpretation of the findings. Consequently, semi-structured interviews were also conducted in this research to support another technique of further interpretations of the questionnaire results.

### **7.5 Correlation Analysis**

As indicated, the fourth and fifth objectives of this study aim to examine several relationships among the importance of different performance measures as drivers for organisational success in long term and to evaluate the impact of selected contingent factors on the use of performance measures.

In order to achieve these objectives and understand these relationships, Pearson correlation is used. This section attempts to explain these relationships, therefore the following discussion is divided into six sections, the first section aims to examine the relationships among the importance of different performance measures as drivers for organisational success in the long term, while the remaining sub-sections will discuss the relationship between each one of five types of performance



measures and each one of the contingent variables. The statistical correlation analysis that has been undertaken to trace the association among variables is Pearson Coefficient correlation test. Each performance measure will be discussed separately, and then a summary of all the individual results will be made.

### **7.5.1 The Pearson Correlation Analysis**

The Pearson correlation as a measure of association was applied in this research to assess associations among different performance measures, and to examine the relationships between independent and dependent variables. After considering the statistical tests employed in previous similar studies (see Abdel- Maksoud et al., 2005; Anderson et al, 2002; Gosselin, 1997) and the nature of the data used in this study, it was decided to conduct the Pearson correlation techniques to achieve some objectives.

The Pearson correlation technique is extensively utilized as an approach to measure the direction and strength of association between two variables. The correlation technique that will be employed is the Pearson test. Weisberg et al, (1995) argue that the Pearson correlation coefficient is a test for measuring the degree of closeness of the linear relationship between two variables. This test is a parametric test that measures three parts of information: Firstly, the direction of the relationship between two variables, which may take one of two directions: positive which means that the two variables are moving in the same direction or negative which means that the two variables are moving in the opposite direction. Secondly, the strength of relationship ( $r$ ) between two variables that is the absolute number of the correlation. Thirdly, the statistical significance of each correlation (Sig), which makes it possible to examine whether the correlation should be accepted or not in the light of certain limits and the need for a confidence interval. Therefore, the next sections show the results of Pearson coefficient concerning the correlation of the importance of use different performance measures, in addition to the correlation of each dependent variable with the independent variables, separately, within small and large samples of the Libyan banks.

#### **7.5.1.1 Pearson Coefficient Correlation for Importance of different performance measures for long term organisational success**

Ittner, and Larcker, (2001) point out some limitations of previous studies regarding the use of non-financial performance measures (i.e. examine only one of many



potential non-financial value drivers, and ignore interactions with other potential value drivers). This may lead to misleading inferences if performance measures are highly correlated or if different performance measures value drivers complement or substitute. In addition, they provide evidence on these issues, which concludes that non-financial measures have a correlation with each other, suggesting that these performance categories may be complementary.

In line with Ittner, and Larcker's (2001) suggestions, this study asked respondents in the questionnaire (questions 3.1A-3.1E) to rate the extent to which different performance measures categories are important drivers of their bank's long-term organizational success. The Pearson correlation was used to find out if different performance measures value drivers are complements or substitutes.

**Table 7.9 Pearson correlation between the Importance of different performance measures for long term organisational success**

		ImFINAN	ImCUSTOM	ImINNOV	ImINTRBUS	ImCOMM
ImFINAN	Pearson correlation	1.00				
	Sig					
ImCUSTOM	Pearson correlation	0.179	1.00			
	Sig	0.022				
ImINNOV	Pearson correlation	0.175	0.124	1.00		
	Sig	0.025	0.114			
ImINTRBUS	Pearson correlation	0.570	0.135	0.039	1.00	
	Sig	0.000	0.087	0.617		
ImCOMM	Pearson correlation	-0.063	-0.122	-0.058	-0.095	1.00
	Sig	0.426	0.121	0.461	0.227	
ImFINAN= Importance of financial measures for long term organisational success, ImCUSTOM= Importance of customer measures for long term organisational success, ImINNOV= Importance of learning and innovation measures for long term organisational success, ImINTRBUS= Importance of Internal business measures for long term organisational success, ImCOMM= Importance of Community measures for long term organisational success						

Table (7.9) reveals the results of Pearson correlation test among different performance measures. As can be seen from the table 7.9 the results show that the scores given to different performance categories are correlated.

The results indicate that the correlations among different performance measures categories are significant. For example, financial measures have a correlation with customer, learning and innovation, and internal business suggesting that these performance measures may be complementary to financial measures.



With regard to customer measures, they have insignificant positive correlation with learning and innovation measures and internal measures, which suggest that these measures are complementary to customer measures. There is also a correlation, as can be seen, between learning and innovation measures and internal measures, that is, these measures are complementary to each other. On the other hand, community measures are negative correlations, providing that there is evidence that community measures are perceived to be substitutes with the rest measures.

**7.5.1.2 Pearson Correlations Coefficient Between the Use of Diverse Performance Measures and Contingent Factors**

In order to perform efficiently the Pearson correlation, the sample of Libyan banks has been categorised according to bank size which contains small and large bank samples. Thus, responses obtained from the two bank samples are analyzed to find out any differences due to bank size to be identified. Mendenhall and Sincich, (1992) state that the correlation that can describe the strength of the relationship between two variables, which is a number between -1 and +1 (inclusive) that measures how closely a set of data points tends to cluster about the regression line. If the correlation coefficient is close to -1, then the variables have a strong positive relationship. It is close to +1, and then there exists a strong negative relationship. If it is near 0, then little or no relationship exists. Consequently, the following sections report the results of Pearson correlation coefficient of each dependent variable with the independent variables within two samples of Libyan banks. Moreover, although the results are discussed and explained after each test, further discussion and explanation will be provided in next sections of this chapter. However, in order to avoid repetition, further explanation and discussion of some results will be ignore until the regression analysis is performed.

**A/ Pearson Correlation Coefficient with the Use of Financial Measures**

Table 7.10 presents the result of Pearson correlation between the use of financial measures in relation to competition, centralisation, total quality management, strategy, environmental uncertainty, and technology in both small and large banks.

The results as shown in table 7.10 suggest that, in small banks sample, there are significant positive correlation between the dependent variable (i.e. financial measures) and two independent variables, which were the use of total quality



management, and environmental uncertainty while competition, centralisation, strategy, and technology have positive correlation with financial measures.

**Table (7.10) The Pearson correlation between the use of financial measures and independent variables**

Independent Variables	SB		LB	
	Pearson Correlation	Sig.	Pearson Correlation	Sig.
COMPIT	0.420	0.103	0.455	0.076
CENTR	0.267	0.141	0.736*	0.034
TQM	0.803*	0.032	0.630*	0.049
STRA	0.500	0.086	0.396	0.086
PEU	0.810*	0.031	0.497	0.069
TECH	0.394	0.108	0.358	0.093
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, EU = Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks.				

However, in large banks sample, two independent variables (centralisation, and total quality management) that have significant positive correlation with the use of financial measures whereas remaining independent variables (competition, strategy, technology, and environmental uncertainty) have positive correlations with financial measures.

#### **B/ Pearson Coefficient Correlation with the Use of Customer Measures**

The Pearson correlation concentrates on the relationships showed in the table 7.11 of each of the matrices the dependent variable, which is customer measures, and other independent variables. Table 7.11 demonstrates the findings of Pearson correlation between the use of customer measures in relation to independent variables.

**Table (7.11) The Pearson Correlation Between the Use of Customer Measures and Independent Variables**

Independent Variables	SB		LB	
	Pearson Correlation	Sig.	Pearson Correlation	Sig.
COMPIT	0.418*	0.001	0.182	0.071
CENTR	0.140	0.270	0.209	0.332
TQM	0.358*	0.004	0.171	0.090
STRA	0.222	0.077	0.234*	0.035
PEU	0.251*	0.045	0.457*	0.000
TECH	0.249*	0.048	0.195*	0.053
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, EU = Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks.				



The results show that, in small banks sample, there is significant positive correlation between dependent variable and four independent variables, which are competition, the use of total quality management, environmental uncertainty, and technology, whereas the rest of independent variables namely centralisation, and strategy have a weak insignificant correlation with the use of customer measures.

On the other hand, correlations within large banks sample are different. As can be noted in table 7.11, there are significant positive correlations between dependent variable (the use of customer measures) and strategy, environmental uncertainty, and technology as independent variables, while remaining independent variables (competition, centralisation, and the use of total quality management,) have a weak insignificant correlation with the dependent variables.

#### C/ Pearson Coefficient Correlation with the Use of Learning and Innovation Measures

The Pearson correlation concerns on the relationships among dependent variable, which are the learning and innovation measures, and independent variables.

**Table (7.12) The Pearson correlation between the use of learning and innovation measures and independent variables**

Independent Variables	SB		LB	
	Pearson correlation	Sig.	Pearson correlation	Sig.
COMPIT	0.512	0.083	0.411*	0.011
CENTR	0.183	0.169	0.523*	0.036
TQM	0.421	0.102	0.358*	0.000
STRA	0.354	0.118	0.790*	0.027
PEU	0.438	0.099	0.548	0.061
TECH	0.604	0.066	0.304	0.104
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, EU= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks.				

Table (7.12) illustrates the results of the Pearson correlation between learning and innovation measures in relation to independent variables in small and large banks samples. On the other hand, in large banks sample, there are significant positive correlation between dependent variable and competition, centralisation, total quality management, and strategy as independent variables, while environmental uncertainty and technology have positive correlation with the dependent variable.



#### D/ Pearson Coefficient Correlation with the Use of Internal Business Measures

The Pearson coefficient focuses on the relationships between dependent variable, which are the internal measures and the independent variables. Table 7.13 shows the internal measures and their correlation coefficient with contingent independent variables. The results of Pearson correlation, in small banks sample, indicate that there are significant positive correlations between dependent variable and competition, the use of total quality management, strategy, environmental uncertainty, and technology as independent variables. However, there is a weak insignificant positive correlation between internal measures and centralisation as independent variable.

**Table (7.13) The Pearson correlation between the use of internal business measures and independent variables**

Independent Variables	SB		LB	
	Pearson correlation	Sig.	Pearson correlation	Sig.
COMPIT	0.395*	0.001	-0.030	0.767
CENTR	0.193	0.127	0.035	0.734
TQM	0.292*	0.019	0.165	0.102
STRA	0.359*	0.004	0.243*	0.015
PEU	0.356*	0.007	0.216*	0.032
TECH	-0.371*	0.003	0.234	0.121
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, EU= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks.				

However, with reference to large banks sample, table 7.13 shows that there are significant positive correlations with two independent variables (strategy, and environmental uncertainty) whereas a dependent variable has a weak positive correlation with centralisation, the use of total quality management, and technology as independent variables, but insignificant negative correlation can be seen with competition.

#### E/ Pearson Coefficient Correlation with the Use of Community Measures

The Pearson correlation focused on the relationship presented in the table 7.14 of each of the matrices of dependent variable, which are the community measures, and the independent variables. Table 7.14 presents results of Pearson correlations within small and large banks samples between community measures as dependent variable and competition, centralisation, total quality management, strategy, environmental uncertainty, and technology as independent variables.



**Table (7.14) The Pearson correlation between the use of community measures and independent variables**

Independent Variables	SB		LB	
	Pearson correlation	Sig.	Pearson correlation	Sig.
COMPIT	0.344*	0.005	0.468	0.074
CENTR	0.171*	0.076	0.760*	0.031
TQM	0.438*	0.000	0.105	0.302
STRA	0.251*	0.046	0.469	0.074
PEU	0.303	0.131	0.267*	0.008
TECH	0.446*	0.025	0.268*	0.007
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, EU = Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks.				

The results show that in small banks, that there are significant positive correlations between the dependent variable and all independent variable except environmental uncertainty which is slightly related to dependent variable.

With regard to large banks, the significant positive correlations can be found between the dependent variable and centralisation, environmental uncertainty, and technology as independent variables, while competition and strategy have positive correlation with the use of community measures, however, the use of total quality management as independent variable has a weak correlation with dependent variable.

### 7.6 Further Discussion For Pearson Correlation Analysis

As mentioned in previous sections, the Pearson correlation analysis was divided into five categories according to the correlations between performance measures with the independent variables for small and large banks samples. Table 7.15 presents a summary of the findings of the Pearson correlation analysis.

Regarding the small banks sample, using financial performance measures as one dependent variable and each of the contingent variables in Pearson correlation tests reveal significant positive relationship between the use of financial performance measures and each of the following contingent variables: the use of total quality management, environmental uncertainty, and technology at least at the 5% level of significance. However, insignificant positive correlation can be noted between the use of financial performance measures and competition, centralisation, and strategy. One the other hand, in the large banks sample, there are significant positive correlations between the use of financial measures and centralisation, the use of total



quality management, environmental uncertainty, and technology as independent variables. However, this is not always the case, the correlations between competition and strategy with the use of financial measures are insignificant positive.

Employing customer measures as one variable, in small banks sample, and each of the contingent variables in Pearson correlation tests revealed a significant positive relationship between the use of customer measures and each of the following contingent variables: competition, the use of total management, environmental uncertainty, and technology at least at the 5% level of significance. However, relationships are insignificant positive between the use of customer measures and centralisation, and strategy. With regard to the large banks sample, there are significant positive relationship between the use of customer measures and strategy, environmental certainty, and technology. But the relationships between customer measures with competition, centralisation, and the use of total quality management were insignificant positive.

Table (7.14) A summary of Pearson coefficient correlation analysis

Dependent and independent variables	Size of bank											
	SB						LB					
	COMPIT	CENTR	TQM	STRA	PEU	TECH	COMPIT	CENTR	TQM	STRA	PEU	TECH
FINAN (1)	+	+	+	+	+	+	+	+	+	+	+	+
CUSOM(2)	+	+	+	+	+	+	+	+	+	+	+	+
INNOV(3)	+	+	+	+	+	+	+	+	+	+	+	+
INTRN(4)	+	+	+	+	+	+	-	+	+	+	+	+
COMM(5)	+	+	+	+	+	+	+	+	+	+	+	+
FINAN = the use of financial measures, CUSOM = the use of customer measures, INNOV = the use of learning and innovation measures, INTRN = the use of internal business process, COMM = the use of community measures, COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, PUE= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks.* = significant influence/effect, + = positive correlation, and - = insignificant influence/effect												

Pearson correlation tests, in small banks sample, for using learning and innovation measures as dependent variable with each of the contingent variables reveal insignificant positive relationships between the use of learning and innovation measures and all contingent variables: competition, centralisation, the use of total quality management, strategy, environmental uncertainty, and technology at least at the 5% level of significance. However, in the large banks sample, there are significant positive association between the use of learning and innovation measures and competition, centralisation, the use of total quality management, and strategy,



however, only positive correlation may be seen with environmental uncertainty and technology.

The results of Pearson correlation tests between using internal measures in the small banks sample with each of the contingent variables showing that there are significant positive relationships between the use of internal measure and competition, the use of total quality management, strategy, environmental uncertainty, and technology at the 5% level of significance. However, the relationship is positive with centralisation. On the other hand, Pearson correlation tests for using internal measures with each of the contingent variables in the large banks sample produced different results. There are significant positive relationships between the use of internal measures and strategy, and environmental uncertainty at the 5% level of significance, in addition to this the relationships are insignificant and positive with centralisation, the use of total quality management, and technology. However, insignificant negative relationships could be noted between the use of learning and innovation and competition.

Similarly, the findings derived from examining the Pearson correlations between the use of community measures and each of the contingent variables in the small banks sample show significant positive relationships between these measures and competition, the use of total quality management, strategy, and technology at the 5% level of significance. However, there is an insignificant positive relationship with centralisation, environmental uncertainty. In case of the large banks sample the Pearson correlation test show that there are insignificant positive relationships between the use of community measures and competition, the use of total quality management, and strategy whereas centralisation, environmental uncertainty, and technology have significant positive relationships with the use of community measures. The Pearson correlation test can be a valuable instrument, however it generates no insight on illustrative control of variables. Therefore, after performing the Pearson correlation analysis, which explains the relationships between dependent and independent variables, the multiple regression tests will be accomplished to determine the significant level of these relationships. So, the next chapter will discuss the regression analysis of the banks samples.



### **7.7 Summary**

This chapter discussed and justified the main steps of data analysis. The SPSS package is used to analyse the data and reveal the complicated nature of the relationship between the dependent and independent variables. Data is classified as interval data because research variables are measured using a 5-point Likert scale, except the organisational size variable, which is a categorical intervening variable that divide banks into small and large size according to their total of assets.

This chapter also utilized skewness and kurtosis for testing the normality of data. Also the Cronbach Alpha coefficient for internal consistency is applied to enhance reliability of dependent and independent variables. In addition, the EFA was used to confirm the construct validity of measures. Furthermore, in order to aggregate the large number of statements used in the survey into few meaningful factors, EFA was carried out. Results from EFA reveal that there are five dependent variables namely: financial; customer; learning and innovation; internal; and community measures whereas six independent variables are determined from EFA namely: competition, centralisation, the use of total quality management, strategy, environmental uncertainty, and technology. Moreover, organisational size is considered as the intervening variables in this study. Respondents believed that all variables accounted for most of the variation in dependent and independent variables. In order to apply Pearson correlation analysis respondents are classified according to organisational size, namely, small and large banks samples. Almost all correlations are positive between dependent variables and independent variables at the 5% level of significance at least within two size categories. These results indicate that these independent variables are critical and have great importance when designing and using different performance measures.



## **CHAPTER EIGHT**

### **PERFORMANCE MEASURES AND ASSOCIATION WITH SELECTED CONTINGENT FACTORS: THE MULTIPLE REGRESSION ANALYSIS**



### 8.1 Introduction

This study has so far examined the effect of each individual explanatory variable on the use of each performance measures within the Libyan banks. This chapter will extend the analysis in order to answer the following questions: what is the joint influence of these contingent variables on the use of performance measures? What are the variables which best explain variations in the use of different performance measures? To confirm the results reported in previous chapter Multiple Regression Analysis will be employed to achieve these objectives, Ezzamel and Hart (1987) suggest that a set of contingency factors taken jointly is likely to be more powerful in explaining variations in organisational structures than a single contingency factor approach. Using multiple regression analysis is to investigate the effect of several independent variables simultaneously on a dependent variable, besides examination of the collective impact of such variables, and determination of which independent variables best explain variations in the dependent variable. Therefore, multiple regression analysis provides balanced results on the joint contributions made by selected explanatory variables and assists understanding of the variability in the value of the dependent variable.

### 8.2 The Motivations for Using Multiple Regression

Jaccard et al. (1990), and Rice, (1995) state that regression analysis reveals how variation in one variable connects to variation in another variable, and what is the form of the relation between the variables. In other words, regression analysis indicates the contribution of each variable in the set of independent variables on the change in the dependent variable. The result from the regression describes the variation in the dependent variable led to one unit change in the independent variable. Therefore, this study has decided to use the regression model for two reasons: 1) Hair et al., (2003) state that multiple regression analysis is a multivariate statistical technique which looks at the association between a single dependent variable with a number of independent variables at the same time. 2) Patton and Zelenka, (1997) argue that the use of regression analysis may avoid or may reduce the possibility of exaggerating explanatory power for a set of independent variables which might arise from performing a series of correlation analyses.



8.3 The Regression Model

As discussed in previous sections, the dependent variable is the use of different performance measures whereas the independent variables are competition, centralisation, the use of total quality management, strategy, environmental uncertainty, and technology. Table 8.1 shows the independent variables included in the regression model, description, regression coefficient ( $\beta_i$ ), code names, and expected signs in the regression analysis.

Table 8.1: List of independent variables, their code names and expected signs in the regression model

Regression Coefficient	Independent Variables	Code name in the Regression	Expected Signs
$\beta_1$	X1= Competition	COMPIT	+
$\beta_2$	X2= Centralization	CENTR	+
$\beta_3$	X3= Total quality management	TQM	+/-
$\beta_4$	X4= Strategy	STRA	+/-
$\beta_5$	X5= Environmental uncertainty	PEU	+/-
$\beta_6$	X6= Technology	TECH	+/-

Therefore, the regression equation can be presented as follows:

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \epsilon_i$$

- Where:
- Y = is the dependent variable (performance measures)
  - X<sub>i</sub> = is the independent variable (contingent factors)
  - $\beta_0$ =is the intercept on the Y axis. It is constant number in equation. By default, the regression model includes this constant term, which is found in the output results of the SPSS.
  - B<sub>i</sub> = the slope of the regression model.
  - $\epsilon_i$  = the residual (error term).

8.3.1 Multicollinearity

It is strongly recommended that multicollinearity problem should be examined before conducting the regression analysis (See, Firth, 1996; Laitinen, 2001). Hair et al., (2003), and Field, (2005) argue that multicollinearity problem takes place when two or more independent variables have significant correlation with each other in the regression model. This problem leads to the power of regression model to determine the contribution of each independent variable in expectation of dependent variable will be minimised.



To check whether or not multicollinearity problem exists in the regression analysis, the majority of previous studies and the statistical literature have employed main three solutions: Firstly, Firth, (1996) and Laitinen, (2001) and other authors recommend that in order to observe the multicollinearity problem before conducting regression analysis, the researcher should calculate the value of the Variance Inflation Factor (VIF), which indicates the strength of the correlation among independent variables included in the regression analysis. Firth, (1996), Laitinen, (2001) and Field, (2005) conclude that a value of 10 or above for VIF suggests the existence of the multicollinearity problem. Secondly, Field, (2005) points out that Tolerance is another test used to identify the multicollinearity problem, which is connected to the VIF, a value below 0.2 indicates that multicollinearity exists.

In this study two mentioned tests are employed to find out whether a multicollinearity problem was in attendance or not. The results of VIF, and Tolerance statistics (see the following tables 7.15 - 7.18 regarding the regression analysis) indicate that a multicollinearity problem was not present in this study. Consequently, it could be concluded that it is appropriate to include all independent variables in on regression model.

### 8.3.2 Important Statistical Denotations In The Regression Analysis

The following sections illustrate the findings of the final models for multiple regression analysis. These results include the following important statistics:

- Multiple R measures the impact of set of independent variables on the dependent variable (Field, 2003).
- R Square shows the percentage of variation in dependent variable that caused by the variation of set of independent variables (Field, 2005).
- $\beta$  is standard, which predicts the amount and direction of variation in dependent variable due to an unit change in independent variables.  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ....etc are standards for estimate regression model.
- Beta is a way to classify the independent variables according to the effect of each one of them on dependent variable. Betas are attempted to make the regression model more comparable.
- t-value provides significant of each independent variable individually to be significant "t-value" should be  $<.05$ .



- F-value shows the model's fit or the significance of the whole model (if "F-value" less than 0.05, so the regression is significant otherwise If "F-value" more than 0.05, so it is insignificant).
- Variance Inflation Factor (VIF) indicates the strength of the relationships among the independent variables in the regression model.(this relationship is considered as acceptable If VIF-value less than 10)
- Tolerance statistic indicates whether there is a multicollinearity problem or not. (if tolerance-value is 0.2 or less, so there is relationship among independent variables or multicollinearity problem, which is unacceptable and vice versa).

### 8.3.3 Multiple Regression Analysis Results

The results of correlation tests regarding the relationships between the use of performance measures, individually, and each independent variables in both small and large banks samples, show a variety of relationships, however, multiple regression tests provide an estimation of the relationships between variables to fit an explanatory model.

The use of the regression analysis allows this study to determine the contribution of each independent variable separately and whether its contribution is significant or not in explaining the variation in the dependent variable. As mentioned early, performance measures included in the regression analysis are financial measures, customer measures, learning and innovation measures; internal measures; and community measures. The following subsections report the results of regression analysis for each performance measures mentioned above against all the independent variables. A discussion and explanation of the findings will be presented in the following sub-sections:

#### 8.3.3.1 Regression Analysis Results of The Variation in The Use of Financial Measures (Model 1)

The first model presents the use of financial measures as a dependent variable and all the contingent factors as independent variables in one model (model 1) within small and large banks samples. Table 8.2 summarize the regression results for small and large banks samples. Relating to the small banks sample, The F-value of 3.298 and its significant value of 0.007 presented in table 8.2 indicate that this model is a



significant model with an explanatory power (adjusted R2) of 0.180 in explaining the variation in the dependent variable. The table shows also that the individual effect of independent variables can be significant only with the use of total quality management (p=0.035) at least at the 5% significance level, but the rest of the variables are not significant. The regression model equation for small banks sample can be expressed as:

$$FINAN_{SB} = -0.044 + 0.180 COMPT + 0.007 CENTR + 0.343 TQM + 0.145 STRA - 0.233 PEU - 0.057 TECH$$

While large banks sample, it seems has the same direction as shown in table 8.2, the regression model is significant (F = 2.402, p= 0.033) with an explanatory power (adjusted R2) of 0.079 in explaining the variation in the dependent variable. In addition, individually, two explanatory variables, namely, environmental uncertainty (p= 0.021) and technology (p= .038) were found to contribute significantly in the model. However, the remaining variables do not individually affect the dependent variable. The regression model equation for large banks sample can be expressed as:

$$FINAN_{LB} = 0.080 + 0.04 COMPT - 0.024 CENTR + 0.061 TQM - 0.083 STRA + 0.209 PEU + 0.211 TECH$$

Finally, multicollinearity statistics, the VIF values and TOL statistics revealed in table 8.2, present evidence that the multicollinearity problem did not exist among the independent variables in this model.



Table 8.2: A summary of regression analysis findings for financial measures

Variables	Size of bank											
	SB						LB					
	B	Beta	t	Sig	TOL	VIF	B	Beta	t	Sig	TOL	VIF
Financial Measures	-.044		-.318	.752			.080		.821	.414		
COMPIT	.180	.168	1.208	.232	.674	1.483	.040	.042	.415	.679	.920	1.088
CENTR	.007	.008	.059	.953	.752	1.330	-.024	-.021	-.208	.836	.941	1.063
TQM	.343	.315	2.144	.036*	.602	1.662	.061	.065	.611	.543	.834	1.199
STRA	.145	.138	1.121	.267	.856	1.169	-.083	-.086	-.858	.393	.926	1.080
PEU	-.233	-.187	-1.63	.110	.977	1.023	.209	.231	2.350	.021*	.974	1.027
TECH	-.057	-.055	-.444	.659	.855	1.170	.211	.217	2.109	.038*	.884	1.131
Multiple R	0.508						0.368					
R Square	0.258						0.135					
Adjusted R Square	0.180						0.079					
Std. Error	0.977						0.909					
F-Value	3.298						2.402					
Sig. of F	0.007*						0.033*					
Regression Model	FINAN = $\beta_0$ + $\beta_1$ COMPIT + $\beta_2$ CENTR + $\beta_3$ TQM + $\beta_4$ STRA + $\beta_5$ PEU + $\beta_6$ TECH + $\epsilon$											
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, PUE= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks. TOL= Tolerance-value, VIF= Variance Inflation Factor												



8.3.3.2 Regression Analysis Results of The Variation In The Use of Customer Measures (Model 2)

The second model shows the use of customer measures as a dependent variable and all the contingency factors as independent variables in one model (model 2) in small and large banks samples. Table 8.3 shows the regression analysis findings concerning the relation between the use of customer measures and independent variables within small and large banks samples. As can be seen from the table, in the small banks sample, the regression model is significant (sig. of F = 0.001) with an explanatory power (adjusted R2) of 0.241 in explaining the variation in the dependent variable. In addition, only two independent variables (competition and technology) that have individually significant effects of the use of customer measures at least at the 5% significance level, however, the rest of the independent variables are insignificant to the dependent variable. The regression model equation can be expressed as:

$$CUSTOM_{SB} = -0.072 + 0.299 COMPT + 0.071 CENTR + 0.172 TQM + 0.101 STRA + 0.236 PEU - 0.269 TECH$$

Regarding large banks sample, table 8.3 shows that the whole model is significant (Sig.= 0.000) with an explanatory power (adjusted R2) of 0.221 in explaining the variation in the dependent variable. In addition, only one independent variable (environmental uncertainty) has an individual significant (0.000) effect on the dependent variable at least at the 5% significance level. Otherwise, the rest of the independent variables are insignificant. The equation of regression is:

$$CUSTOM_{LB} = 0.020 + 0.130 COMPT - 0.052 CENTR + 0.129 TQM - 0.065 STRA + 0.393 PEU + 0.088 TECH$$

Table 8.3 indicates that there is no multicollinearity problem due to the results reveal the acceptable range for VIF values and TOL statistics.



Table 8.3: A summary of regression analysis findings for Customer measures

Variables	Size of bank											
	SB						LB					
	B	Beta	t	Sig	TOL	VIF	B	Beta	t	Sig	TOL	VIF
Customer Measures	-.072		-.528	.600			.020		.225	.822		
COMPT	.299	.276	2.063	.044*	.674	1.483	.130	.139	1.494	.139	.920	1.088
CENTR	.071	.074	.582	.563	.752	1.330	-.052	-.046	-.498	.620	.941	1.063
TQM	.172	.156	1.105	.274	.602	1.662	.129	.139	1.421	.159	.834	1.199
STRA	.101	.095	.801	.426	.856	1.169	-.065	-.068	-.737	.463	.926	1.080
PEU	.236	.187	1.686	.097	.977	1.023	.393	.437	4.841	.000*	.974	1.027
TECH	-.269	-.255	2.146	.036*	.855	1.170	.088	.092	.967	.336	.884	1.131
Multiple R	0.560						0.519					
R Square	0.313						0.269					
Adjusted R Square	0.241						0.221					
Std. Error	0.952						0.829					
F-Value	4.333						5.638					
Sig. of F	0.001*						0.000*					
Regression Model	CUSTOM = $\beta_0 + \beta_1 \text{COMPT} + \beta_2 \text{CENTR} + \beta_3 \text{TQM} + \beta_4 \text{STRA} + \beta_5 \text{PEU} + \beta_6 \text{TECH} + \varepsilon$											
COMPT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, PUE= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks. TOL= Tolerance-value, VIF= Variance Inflation Factor												



8.3.3.3 Regression Analysis Results of The Variation in The Use of Learning and Innovation Measures (Model 3)

The third model shows the association between the use of learning and innovation measures as a dependent variable and all the contingent factors as independent variables (model 3). Table (8.4) summarizes the regression results for small and large banks samples. As can be seen from table 8.4, in small banks sample, the F-ratio was found insignificant ( $p= 0.475$ ) for the regression model. Furthermore, individually, all independent variables have insignificant influence on the use of learning and innovation measures. The regression model equation can be expressed as:

$$INNOV_{SB} = 0.217 + 0.141 COMPT + 0.166 CENTR - 0.205 TQM - 0.069 STRA - 0.086 PEU + 0.010 TECH$$

On the other hand, the regression model for large banks sample was highly significant ( $p= 0.002$ ) with an explanatory power (adjusted  $R^2$ ) of 0.142 in explaining the variation in the dependent variable. The model indicates that independent variables with an explanatory power of 0.142 in explaining the variation in the dependent variable. The following independent variables explained 14.2% of the variation in the use of learning and innovation measures in large banks sample.

In addition, the results in Table 8.4 show that two explanatory variables were identified by the model as significantly associated with the use of learning and innovation measures at least at the 5% significance level. These variables were the use of total quality management ( $p= 0.000$ ), and technology ( $p=0.036$ ). These explanatory variables were the only two factors that had individually a significant association with and influence on the use of learning and innovation measures. The equation of regression is:

$$INNOV_{LB} = -0.198 + 0.083 COMPT - 0.012 CENTR - 0.476 TQM + 0.149 STRA + 0.029 PEU + 0.224 TECH$$

Multicollinearity statistics, the VIF values and TOL statistics, reveal no multicollinearity problem existed among the independent variables in this regression model. These statistics are shown in table 8.4 below.



Table 8.4: A summary of regression analysis findings for learning and innovation measures

Variables	Size of bank											
	SB						LB					
	B	Beta	t	Sig	TOL	VIF	B	Beta	t	Sig	TOL	VIF
Learning and innovation Measures	.217		1.686	.097			-.198		-1.921	.058		
COMPIT	.141	.159	1.032	.307	.674	1.483	.083	.081	.829	.409	.920	1.088
CENTR	.166	.208	1.430	.158	.752	1.330	-.012	-.010	-.099	.921	.941	1.063
TQM	-.205	-.227	-1.393	.169	.602	1.662	-.476	-.465	-4.540	.000*	.834	1.199
STRA	-.069	-.079	-.580	.564	.856	1.169	.149	.141	1.455	.149	.926	1.080
PEU	-.086	-.083	-.651	.518	.977	1.023	.029	.029	.305	.761	.974	1.027
TECH	.010	.011	.084	.933	.855	1.170	.224	.212	2.132	.036*	.884	1.131
Multiple R	0.300						0.441					
R Square	0.090						0.195					
Adjusted R Square	0.016						0.142					
Std. Error	0.898						0.955					
F-Value	0.939						3.707					
Sig. of F	0.475						0.002*					
Regression Model	INNOV = $\beta_0$ + $\beta_1$ COMPT + $\beta_2$ CENTR + $\beta_3$ TQM + $\beta_4$ STRA + $\beta_5$ PEU + $\beta_6$ TECH + $\varepsilon$											
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, PUE= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks. TOL= Tolerance-value, VIF= Variance Inflation Factor												



8.3.3.4 Regression Analysis Results of The Variation in The Use of Internal Measures (Model 4)

In the fourth model, the dependent variables are internal measures and all the contingency factors are independent variables (model 4) in small and large banks samples. Table (8.5) summarizes the regression results for small and large banks samples. With reference to small banks sample, the table 8.5 indicates that the model was highly significant (p= 000), with an explanatory power (adjusted R2) of 0.355 in explaining the variation in the dependent variable. In addition, three explanatory variables, namely, competition, strategy, and technology were found to contribute significantly in the model with p-values 0.024, 0.010, and 0.000 respectively, these three independent variables and the dependent variable was positive.

The regression model equation can be expressed as:

$$INTERN_{SB} = 0.116 + 0.303 COMPT + 0.194 CENTR + 0.007TQM + 0.302 STRA - 0.119 PEU - 441 TECH$$

Simultaneously, as shown in table 8.4 the model of the regression for large banks sample presents F-value is significant of 0.011, and the adjusted R2 of 0.107 shows the explanatory power of this model in explaining the variation in the dependent variable. Individually, three explanatory variables, as can be seen from the table, are a significant association with the dependent variable, which are the use of total quality management (p=0.028), strategy (0.003), and environmental uncertainty (0.039), these variables show a positive association with the dependent variable. The equation of regression is:

$$INTER_{LB} = -0.162 - 0.003 COMPT + 0.060 CENTR - 0.216 TQM + 0.238 STRA - 0.181 PEU - 0.039 TECH$$

In this model there is no multicollinearity problem, as shown in table 8.5, the VIF values and TOL statistics are in acceptable ranges.



Table 8.5: A summary of regression analysis findings for internal measures

Size of bank												
Variables	SB						LB					
	B	Beta	t	Sig	TOL	VIF	B	Beta	t	Sig	TOL	VIF
Internal Measures												
COMPIT	.116		.942	.350			-.162		-1.698	.093		
CENTR	.303	.285	2.311	.024*	.674	1.483	-.003	-.004	-.036	.972	.920	1.088
TQM	.194	.203	1.744	.087	.752	1.330	.060	.052	.532	.596	.941	1.063
STRA	.007	.006	.049	.961	.602	1.662	-.216	-.233	-2.233	.028*	.834	1.199
PEU	.302	.290	2.655	.010*	.856	1.169	.283	.298	3.000	.003*	.926	1.080
TECH	-.119	-.096	-.937	.353	.977	1.023	-.181	-.202	-2.093	.039	.974	1.027
	-.441	-.426	-3.896	.000*	.855	1.170	-.039	-.041	-.400	.690	.884	1.131
Multiple R	0.646						0.402					
R Square	0.417						0.162					
Adjusted R Square	0.355						0.107					
Std. Error	0.861						0.882					
F-Value	6.789						2.957					
Sig. of F	0.000*						0.011*					
Regression Model	INTERN = $\beta_0 + \beta_1$ COMPIT + $\beta_2$ CENTR+ $\beta_3$ TQM + $\beta_4$ STRA+ $\beta_5$ PEU + $\beta_6$ TECH + $\varepsilon$											
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, PUE= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks. TOL= Tolerance-value, VIF= Variance Inflation Factor												



8.3.3.5 Regression Analysis Results of The Variation in The Use of Community Measures (Model 5)

The final model presents community measures as the dependent variable and all the contingency factors as independent variables (model 5). Table (8.6) summarizes the regression results for small and large banks samples. Regarding the small banks sample, it could be seen from table 8.5 that the whole model is insignificant (sig. = 0.758, which is  $P>.05$ ). Moreover, it could not be noted that significant individual effect of contingency factors (independent variables) to dependent variable. The equation of regression is:

$$COMM_{SB} = 0.183 + 0.069 COMPT + 0.152 CENTR + 0.082 TQM + 0.064 STRA + 0.011PEU - 0.137TECH$$

In respect to large banks sample, the same direction can be noted, where the whole model is insignificant (Sig. = 0.755), in addition to this all independent variables are found to be insignificant to the dependent variable. From the above table, the regression model equations for large banks samples can be expressed as follows:

$$COMM_{LB} = - 0.169 + .083 COMPT + .003 CENTR - 0.126 TQM + 0.119 STRA + 0.052 PEU + 0.116 TECH$$

Furthermore, table 8.6 also indicates the VIF values and TOL statistics. The results suggest the multicollinearity problem does not exist among the independent variables in this model.



Table 8.6: A summary of regression analysis findings for community measures

Variables	Size of bank											
	SB						LB					
	B	Beta	t	Sig	TOL	VIF	B	Beta	t	Sig	TOL	VIF
Community Measures	0.183		1.402	.166			-.169		1.493	.139		
COMPIT	0.069	0.077	0.494	0.623	0.674	1.483	.083	.080	.748	.456	.920	1.088
CENTR	0.152	0.192	1.290	0.202	0.752	1.330	.003	.002	.022	.982	.941	1.063
TQM	0.082	0.091	0.550	0.584	0.602	1.662	-.126	-.123	1.095	.276	.834	1.199
STRA	0.064	0.074	0.530	0.598	0.856	1.169	.119	.113	1.059	.293	.926	1.080
PEU	0.011	0.011	0.084	0.933	0.977	1.023	.052	.053	.508	.613	.974	1.027
TECH	-0.137	0.159	1.141	0.259	0.855	1.170	.116	.109	1.003	.318	.884	1.131
Multiple R	0.236						0.189					
R Square	0.056						0.036					
Adjusted R Square	0.043						0.027					
Std. Error	0.912						1.049					
F-Value	0.562						0.568					
Sig. of F	0.758						0.755					
Regression Model	COMM = $\beta_0 + \beta_1$ COMPIT+ $\beta_2$ CENTR+ $\beta_3$ TQM+ $\beta_4$ STRA+ $\beta_5$ PEU+ $\beta_6$ TECH + $\epsilon$											
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, PUE= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks. TOL= Tolerance-value, VIF= Variance Inflation Factor												



#### **8.4 Further Discussion for Regression Analysis**

The results reported in regression' analysis shows various explanatory powers for independent variables to explain the variation in each dependent variable. Table 8.7 summarizes the regression analysis findings. The regression analysis reveals that the whole model in small banks sample, namely the regression models 1; 2; 4 were highly significant at the 0.05 level of significance, the explanatory powers (adjusted R2) of these models were 18% for model 1, 24.1% for model 2, and 35.5% for model 4. However, models 3; 5 were insignificant. That means the contingency factors jointly have effect on the uses of financial, customer, and internal measures, on the other hand, they have no impact on the uses of learning and innovation; and community measures. In respect to separate impact of independent variables on the use of different performance measures, competition is significant in explaining the variance in the use of customer (model 2) and internal measures (model 4). Otherwise, the explanatory factor -competition- is insignificant in explaining the variance in the use of financial (model 1); learning and innovation (model 3); and community (model 5) measures. In addition, the use of total quality management is significant in explaining the variance in the use of financial (model 1) measures, also strategy is significant in explaining the variance in the use of internal (model 3) measures while technology factor is significant in explaining the variance in the use of customer (model 2) and internal (model 4) performance measures. However, the analysis indicates that centralization and environmental uncertainty are insignificant in explaining the variance in the use of performance measures at all models 1-5.

As for large banks sample, table 8.7 summarizes the whole regression models and the individual effects of independent variables of the use of different performance measures results. Furthermore, table shows that the whole regression models 1; 2; 3; 4 were significant with the explanatory powers (adjusted R2) of four models are 8% for model 1, 22.1% for model 2, 14.2% for model 3, and 10.7% for model 4. The low explanatory power (adjusted R2) of models suggests other explanatory factors are not or are slightly involved in explaining the variation in using different performance measures. It is normal to have such a low (adjusted R2) in regression analysis (see, for example, Abdel-Maksoud et al, 2005). Conversely the regression model 5 was insignificant. Therefore, it could be concluded that the independent variables together are influencing the uses of financial, customer, learning and



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innovation, and internal measures, on the other hand, they have no impact on the use of community measures.

**Table 8.7: A summary of regression analysis findings**

Regression Models	Size of bank													
	SB							LB						
	COMPIT	CENTR	TQM	STRA	PEU	TECH	Sig. of F	COMPIT	CENTR	TQM	STRA	PEU	TECH	Sig. of F
FINAN (1)	-	-	*	-	-	-	*	-	-	-	-	*	*	*
CUSOM(2)	*	-	-	-	-	*	*	-	-	-	-	*	-	*
INNOV(3)	-	-	-	-	-	-	-	-	-	*	-	-	*	*
INTRN(4)	*	-	-	*	-	*	*	-	-	*	*	-	-	*
COMM(5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Y = β0+ β1 COMPT + β2 CENTR + β3 TQM + β4 STRA + β5 PEU + β6 TECH + ε													
COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, PUE= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks.* = significant influence/effect, - = insignificant influence/effect														

In addition, the individual effect of independent variables on the dependent variables, table 8.7 denotes that only environmental uncertainty and technology variables are significant in explaining the variance in the use of financial measures (model 1). Environmental uncertainty is significant in explaining the variance in the use of customer measures (model 2), whereas total quality management and technology variables are significant in explaining the variance in the use of learning and innovation measures (model 3). Likewise, the use of total quality management and strategy are significant in explaining the variance in the use of internal measures (model 4). On the other hand, all independent variables, individually, are not significant in explaining the variance in the use of community measures (model 5).

### 8.5 Summary

This chapter has reported the multiple regression analysis findings of the association between a number of contingent variables and the use of each performance measure. The uses of performance measures were measured using five types of measures, namely, financial, customer, learning and innovation, internal, and community measures. As a result, five models of regression were developed, and each model examined the association between individual use of one of performance measures as dependent variable and jointly contingent factors as independent explanatory



variables. These models have examined independent variables (contingency factors), which might explain the variation in the level of using performance measures within the Libyan banks. The regression analysis results confirmed some results in the previous chapter. However, the variation of results between Pearson correlation and multivariate analysis might be partly due to interrelationships between explanatory variables in the regression models in explaining the variation in the dependent variable. This seems to suggest that regression analysis results are more reasonable, acceptable and reliable than Pearson correlation ones. Differences between Pearson correlation and multivariate analysis results have also been reported in many previous relevant studies (see, for example, Abdel- Maksoud et al, 2005).

Regression analysis highlights the significant factors that affect the design and the use of different performance measures in the small and large Libyan banks. In small sized banks, all the independent factors were significant with a different set of performance measures except centralisation and environmental uncertainty, which failed to prove significant with a different set of performance measures. This result may comes from that the small banks operate in local areas adopting limited services/businesses, therefore, small banks paid less consideration to centralisation level and the environmental uncertainty as well. On the other hand in large sized banks, all the independent factors were significant to different performance measures, excluding competition and centralisation. This might because all large banks are public banks which are owned by the Central Bank of Libya and they are working under its supervision, which makes competition low and the level of centralisation is dominated by the Central Bank, which is not consistent with any previous studies.



## **CHAPTER NINE**

### **PERFORMANCE MEASURES: PERSONAL INTERVIEW**



### 9.1 Introduction

The purpose of this chapter is to analyse outcomes of semi-structured interviews with eighteen participants from a sample of the Libyan banks. The interviews aimed to obtain further details and explanations about the current use of diverse performance measures and potential factors that influenced their usage in order to assist explain and confirm information collected using the questionnaire survey. In addition, interviews could provide the researcher new issues to be considered in the future.

Interviews<sup>1</sup> took place during September to the end of November 2009. The introduction about researcher, aim, importance of study and advantages of this study has been given to each one of interviewees. In addition, in order to provide evidence that this study has received ethical approval, the researcher supplied a copy of the letter of Ethical Approval from LJMU. This process is to confirm that all given information and opinions will be used only for this study purposes and analysed by researcher to avoid the bias of answers (no names/personal details will be used in research). Moreover, all interviewees were offered the option to withdraw from this study (for six months after conducting the interview). Finally, the confirmation was made by the researcher that all interview data will be destroyed at the end of this research.

In order to be appropriate for data social phenomena, the personal interview approach is applied for two reasons: Firstly, as mention by previous studies, it is difficult to focus managers' attention using only the questionnaire survey approach (e.g. Dew and Gee, 1973). Secondly, the interviews offer the chance to collect more data (qualitative), which supports the statistical analysis and shows how respondents see the importance of the use of different performance measures in practice, in addition to the factors that influence the use of these performance measures. The interviews were semi-structured and managers were asked open questions about the use of performance measures and the contingent factors that affect these performance measures.

The open questions increased constructs validity by making certain that respondent/interviewee was concentrated on the construct associated with each performance measures. Face-to-face interviews allow repeating the questions until

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<sup>1</sup> All interviews were carried out in Arabic.



such a focus was achieved. This focus validated the interviewee reply, where the responses were not consistent; this inconsistency could be resolved at the time of the interview. The rapport developed during the face-to-face interviews enabled these inconsistencies to be clarified and interviewee often gave clearer answers to validate their responses. Examining the construct from a number of perspectives in this manner is strength of method because it improves convergent validity (Burgess, 1982).

During the interview, the researcher asked the interviewees to complete the questionnaire, during which procedure the researcher answered explained, and clarified any questions/queries raised by interviewee. The researcher also asked interviewees further questions and explanations during the interview. After completing the questionnaire, the researcher encouraged interviewees to discuss, insert, or identify any extra issues and ideas that related to the current study had not covered particularly other factors influencing performance measures. Interviews lasted from 1 ½ to, 2 hours.

The interview guide was divided into three sections. The first section asks about general information of bank and interviewee. The second section discusses personal opinions and beliefs of interviewee about the importance of the use of different performance measures. The third section explores the point of views of the interviewees about different factors that might affect the use of the performance measures in their banks. Several interviewees have refused to allow tape-recording of their interviews. This may possibly be due to the secretive culture that adopted in Libyan society. Consequently, remarks were noted during the interview, then were written up as soon afterwards as possible.

Post-survey interviews were performed in order to give further insight into the findings of the questionnaire survey providing the basis for data analysis. In addition twenty-five banks were initially contacted for interviewing purpose, of which eighteen banks agreed to participate in this study. Seven banks were from large banks sample and eleven banks were from small banks sample. Participants were from different banking categories. The 18 interviewees were selected to represent different characteristics (size, type of business, type of ownership) of the Libyan banks. However, the interview sample depends on personal agreement to participant



in interviews. Table (9.1) classifies the characteristics of banks samples that agree to participate in the interviews.

The seven participants from large banks, are bank (1) the National Commercial bank, which is owned-state and works in commercial business. In addition, it has about 35 branches across the country, and it is considered as a large bank with approximately thirty six hundreds (3641) million Libyan dinars as total of assets. Bank (2) is Al-Wahda which is commercial activity and it was privatized with foreign partnership. It has about 42 branches across the country, and the bank is considered as a large bank with approximately eight hundreds (800) million Libyan dinars as total of assets.

Bank (3) is Giumhouria bank, which is public and works as a commercial activity. The bank has more than 60 branches and it is considered as large bank with about forty nine hundreds (4912) million Libyan dinars as total of assets. Bank (4) is saving and Real-Estate investment bank, which is public and works as specialized business in construction sector. This large bank has 12 branches dispersed in different Libyan governorates with about forty six hundreds (4585) million as total of assets. Bank (5) is a Development bank, which is public and works as a specialized business in industrial sector, and it is considered as a large bank with approximately twenty eight hundreds (2786) million as total of assets, and it has 14 branches around the country. Bank (6) Sahara bank, which is joint venture with French partnership, and works in commercial activity, its total of assets is about nine hundreds (5320) million, so it is considered as a large size. This bank has 25 branches working in different regions in the country. Bank (7) is Commerce and Development bank, which is private and works as a commercial in multiple funds for different sectors. It has 12 branches in the country. In addition, the bank is considered according to total of assets with about twelve hundreds (1244) million.



**Table 9.1 A summary of participated banks in the interviews**

Interviewee's title of job			TSBCAT		SIZCAT		OWCAT	
			COM	SPE	SB	LB	PUB	PRI
CEO			3	0	2	1	0	3
SM			4	1	3	2	1	4
BM			9	1	6	4	3	7
Interviewers			16	2	11	7	4	14
Name of banks <sup>2</sup>	Coded Name	Total of Assets	Type of Business	Date of Establishment	Ownership	Number of Branches		
The National Commercial Bank	NCB	3641	Commercial	1970	Public	35		
Giumhouria Bank	GB	4912	Commercial	1969	Public	60		
Saving and Real-Estate Investment Bank	SREIB	4585	Specialized	1981	Public	12		
Development Bank	DB	2786	Specialized	1981	Public	14		
Al-Wahda Bank	WB	3453	Commercial	1970	Private (joint venture with foreign partnership)	42		
Sahara Banks	SB	5320	Commercial	1970	Private (joint venture with foreign partnership)	25		
Commerce & Development Bank	CDB	1244	Commercial	1996	Private	12		
Alejmma Alarabi Bank	AAB	107	Commercial	2003	Private	4		
Aman Bank For Commerce & Investment	ABCI	56	Commercial	2003	Private	6		
Al-Wafa Bank	WFB	31	Commercial	1997	Private	4		
Mediterranean Bank	MB	40	Commercial	2007	Private	3		
African Bank of Trade and Investment	ABTI	78	Commercial	2007	Private	3		
Alsaraya Trading And Development Bank	ATDB	53	Commercial	2007	Private	2		
United Bank for Trade and Investment	UBTI	181	Commercial	2007	Private	10		
Benghazi Commerce & Development Bank	BCDB	144	Commercial	1996	Private	12		
Ajdabia National Bank	ANB	45	Commercial	2001	Private	1		
Darna National Bank	DNB	37	Commercial	2003	Private	1		
Algiabel Alathkhr National Bank	AANB	51	Commercial	2004	Private	1		
BM = Branch Manager, SM = Senior Manager, CEO = Chief executive officer, TSBCAT = Type of Business category, OWCAT = Type of Ownership category, SIZCAT = Size of banks category. COM = commercial banks, SPE = specialised banks, PUB = public banks, PRI = private banks, SB = small banks, LB = large banks.								

The small sized banks are as follows: all small banks are private ownerships and work as commercial business banks with various total of assets and number of

<sup>2</sup> The data have been collected by the researcher from The Central Bank and Libyan banks webs



branches. These banks are: Bank (1) is Alejmma Alarabi bank, which has four branches and agencies in the biggest cities in Libya, and it is considered as small bank based on about hundred (107) million Libyan dinars as the total of assets. Bank (2) is Aman Bank for Commerce and Investment, which is considered as small bank according to its total of assets which is approximately fifty six (56) million, and it has six branches and agencies in biggest cities in Libya. Bank (3) is Al-Wafa Bank, which is considered as small bank according to about thirty (31) million as total of assets, and it has four branches and agencies only in capital city. Bank (4) is Mediterranean Bank, which is considered as small bank according to its total of assets which was forty (40) million, and it has only three branches and agencies located in capital city. Bank (5) is African Bank of Trade and Investment, which has three branches and agencies located in the capital city, and it is considered as small banks based on seventy eight million as total of assets. Bank (6) is Alsaraya Trading and Development Bank, which is considered as small bank based on total of assets with fifty three (53) million, and it has two branches across country. Bank (7) is United Bank for Trade and Investment, which is considered as a small bank as total of assets with hundreds and eighty (181) million, in addition, it has ten branches and agencies across the county. Bank (8) is Commerce & Development Bank, which is considered as small bank according to total of assets with hundred and forty (144) million, and it has twelve branches and agencies, whereas banks (9); (10); and (11) are national banks which are working only in one region (city) with only one office, and they are considered as small banks according to their total of assets which are forty five (45); thirty five (35) and about fifty (51) million respectively.

Content themes and observations by the researcher are provided in the following summary. Analysis of the interview data are discussed, where appropriate, with direct quotes by the managers, with as little editorial interpretation as possible.

## 9.2 Analysis of Interviews

### 9.2.1 Comments on performance measures

This section provides further information and additional explanations about performance measures. In other words, the following issues discussed during interviews supplement information obtained from questionnaire.



### A. Financial Measures

All participant banks in this study agreed on the importance of financial measures in order to measure different financial aspects such as profitability, liquidity, and debt percentages, which would permit the bank to monitor if anything goes wrong. For example, they utilize financial ratios such as profit margin, return on investment, cash flow, and asset turnover, which are always considered the heart of the financial perspective. However, most of the large sized banks used these aspects to compare their business outcomes with previous outcomes and with the results of their main competitors. For example, when the branch manager of bank (GB), public commercial bank, was asked whether there were regular examinations to follow up the current financial performance and compare it with the previous performance and with other branches, his response was:

*Yes, of course, to some extent, financial measures are given more importance by the top management and branch management as well; it is the bank's policy to do customary financial comparisons with last year performance and current performance for other branches performance so that if there is any deviation, management should treat it and know what the reason for this deviation were in order to avoid it in the future. This process is to ensure that performance is improved and controlled.*

When the Chief executive officers in banks (BCDB and ANB), small private commercial banks, were asked about the financial measures applied in their banks, their responses were like:

*Financial measures are of principal importance to any business because they could easily understand what a figure means, and consequently find out how bad or excellent are banks performance?*

Thus, above comments appear to suggest that the financial measures for both small and large sized banks are of key importance to manage and monitor the bottom line of the business.

### B. Customer Measures

Although, the majority of interviewees agreed about the importance of the use of customer measures in evaluation of performance, but some banks such as SREIB and DB banks, public specialized banks, do not see the extent of the importance of such measures for evaluating performance in these banks. However, the rest of banks, such as SB; WB; CDB; AAB; ABCI and ATDB banks, private and public



banks which are working in commercial business, strongly agree to importantly utilise customer measures to monitor their customers' need. In other words, as confirmed by Kaplan and Norton, (1996) customer perspective identifies outcome measures that will assist that achievement of bank's goals.

As the CEO of bank (CDB), claimed:

*.. Although, we already have a large number of customers who expect us to supply quality services with extra value, but it is not every day we need to offer new services ... It's a challenge... sometimes, we do survey customer to measure customer satisfaction for our services, in order to attempt our best to meet what customers require...which is not always easy but it is interesting ...finally, customer relations are very important to sustain any competitive advantage*

In banks (CDB; AAB; and UBTI), small and large banks, which are commercial banks, the interviewees were interviewed, they believed that differentiation of services is a key point in achieving the bank's goals of obtaining a large market share of banking market are of regional level. In addition, they argue that the customer research is important for the determination of new/changing customers' tendencies, which in turn, affect the bank's profits.

As senior manager from AAB bank said that:

*....tracking and following up our competitors movements informs us about the level of our services and what new services we should be adding to our services package. In addition, we gather usually but not always more information through research that have been done by customer services department to determine customers' requirements and expect customers' new trends.... then the bank supplies our customers with good services fit in their expectations, as a result, increases customers' loyalty leads to revenue growth.*

Consequently, interviewees' comments seem to conclude that customer measures for the majority of large and small banks, especially commercial, are of essential importance, particularly, when there is differentiation of services that aids to supply bank's customers with suitable services that make them satisfied. These comments are in line with the arguments by Kaplan and Norton (1996), which is that customer satisfaction can come from another generic outcome measure of customer perspective, which increases market share that means revenue growth.



### C. Innovation and learning Measures

Innovation and learning measures focus on creating or re-designing a business process, which may result in more efficient and enhanced performance. So, it is necessary that each member in the organisation is active in learning through training, personal experience, workshops, and any other method for information sharing. The aim of organisational learning is to benefit from gathered knowledge of its employees, and organisational knowledge, which is developed by results of learning and innovation. Whereas employees might learn, from the importance of creation some mechanisms based on new knowledge and idea, which are communicated and harnessed by the banks. In addition, selected member of bank might be charged with the task of scanning and evaluating emerging technologies.

The senior manager in bank (NCB), which is a large public commercial bank, asserted that they always apply modern technology that develops performance and that the bank knows how to effectively adapt to the changing condition. He also expressed how actively the bank pursues the learning process through training programs for employees in different levels. He stresses that employees needed to be trained with new technologies, and that the bank works closely with its stakeholders. His own words were:

*The bank management thinks that the employees are the main driver for improvement in performance. They are the main source of any changes/improvements: therefore the bank gives a lot of funds for training purposes to keep our employees well trained and highly skilled, which in turn, will push the performance.*

In bank (BCDB), which is a small private commercial bank, the vice CEO was interviewed, he is not greatly concerned about these measures, particularly where the level of competition is not high. As he said:

*.... Although, differentiation of banking service and coming up with new ideas in our bank are supporting the image of the bank based on the quality and the creativity of our services but these concepts are limited in the bank. So, the bank does not need extra activities to improve the bank's image. Hence, he is not strongly encouraging the marketing department staff to come up with new and interesting ideas for revenue promotion.*

Thus, the above comments appear to suggest that the innovation and learning measures for most large banks sample are growing in importance. However, this is not always the case, the small banks sample believe this is less important to the



innovation and learning measures. While large banks will accomplish greater innovation and more effective learning through investing in employees. To sustain and develop competitive positions, most banks turn to their human resources for creativity and innovation. Creative and innovation rests on the acquisition, dissemination and reaction to new knowledge. The success of this process depends on the employees' ability to share their diverse ideas and insights. However, dissatisfied employees tend to be less committed and more likely to engage in withdrawal activity. For any bank, to attract, retain, and motivate employees, the bank must focus on motivating them. Once employees experience improved quality of work, their contribution to decision making and problem solving increases. This would encourage them to access, share and utilise their latent information and knowledge that can promote creative and innovative behaviour, enhancing decision making, creativity and innovation. These improvements have a direct impact and benefits for the organisation. Thus this environment would encourage creating new ideas, which could lead to improving services or provide services.

#### **D. Internal Business Process Measures**

Interviewees were asked about the use of internal measures in the literature as: employees' satisfaction; delivery on time; quality of services issues, turnover of employees; employees' productivity. These measures comprise aspects that permit the bank to classify the key business issues, in which they must excel for dealing with customer needs. Quality and time are important aspects that impact many of these internal processes measures. The internal business process is derived from the concept of the value chain. Kaplan and Norton (1996) say that all internal processes relate to understanding of services to satisfy customers' desires.

Interviewed banks indicate that internal measures were frequently utilized as reveal by the interviewees. All interviewees of large and small banks address the benefits from applying such type of measures. For example, branch manager from bank (SB), which is large private commercial bank, said:

*.. These measures are very fundamental issues for any business, thus, a bank has departments (e.g. quality assessment and customers' complaints departments) that deal with most of these key internal processes. Whereas it is not easy to understand how these issues affect the financial figures, but what positive is that without monitoring such key issues, it would be much harder to improve the financial figure, if not impossible.*



Also, branch manager from bank (ABCI), which small private commercial bank, stated:

*...As we are working in financial industry that is characterized by offering intangible products, thus, the bank is forced to pay more attention to the internal issues such as to maintain and update our services quality. The processes are then regularly interrogated by quality improvement teams to determine what might be causing any problems (if any), and investigate these problems that may have occurred and the circumstances in which they arose. In addition, delivery on time has a main role in our industry because we have to deliver the service in suitable time to the customers. Otherwise, banks could face decrease of customers' satisfaction, leading to greater losses.*

Consequently, the comments about the internal measures appear to propose that the internal measures for the majority of large and small banks are important. Hence, managers identify these measures as they show whether the bank has achieved operational excellence through improving resource management, asset utilization, and other internal business processes.

#### **E. Community measures**

Adams and Zutshi, (2004) argue that performance measurement systems involve environmental and community (social responsibility) aspects. These dimensions come from a rising in global interest in corporate social responsibility, in which organisations to take into account the social impact of corporate activity when making decisions. In addition, social performance refers to the impact of an organisation's behaviour on society including the broader community, employees, customers, and suppliers (Langfield-Smith et al., 2006).

The community measures indicators summarise information on a bank's social community performance which are then evaluated for decision making and other stakeholders. The most well-known measures of community commitment is public image. The compliance indicators relate to the organisation's compliance to community legislation as well as community liabilities. This permits managers to be aware of how to focus on continued development could influence other important performance targets.



All interviews indicate that all of their banks should used measures whether because they have to obey a regulation or because they seek to have a better image for their business in the eyes of their customers and the rest of stakeholders. Consequently, the general managers of budgets for banks (e.g. GB, SREIB, NCB), large public and private commercial banks, he states:

*... Irregularly, we have consideration with social issues: as our responsibility to the social community and to make our image better in order to achieve competitive advantages especially the Libyan banks coming up to a high competition level after foreign banks participated in Libyan banking market. However, government has requested us to participate in some social and national accessions. Then a check done by the government (Central Bank of Libya) to ensure the everything is in order.*

In banks (AAB;; ABCI) small private banks, branch banks agree that the management has recently since consideration to direct and manage all the activities related to social, health and safety issues at the plant. The bank provides employees with appropriate personal health insurance. Their words were:

*Our principal social issues involve compliance of existing operations, participate in social and national celebrations and employee health and safety. The bank's existing operations are in compliance with Libyan guidelines. Unfortunately, it is not compulsory to do so, therefore the bank considers occasionally these issues.*

In bank (BCDB) small private banks, a senior manager assures us that they have a department that is responsible for environmental activities,

*First of all, we focus on financial return for loan applications, however, sometimes, we have consideration about social responsibility in the banking activities, thus, we require from industrial loan applications to provide evidence to obtain the certificate of environmental effect (if any) as a condition to loan money. We also have supported activities that are concerned with recycled and others that do not harm the society .of course, this is after fulfil the financial conditions.*

The following is the matrix framework, as shown in table (9.2), which was used to compare the data across different banks. The matrix format draws attention to presence or absence of consistency and consensuse across different respondents as such it is a useful tool for comparing data across a set of respondents



Table (9.2) Interview Data Matrix

	NCB	GB	SREIB	DB	WB	SB	CDB				
Demographic information for bank and interviewee											
• Year with the banks	12	17	21	16	23	18	11				
• Years in current position	8	12	15	8	15	10	10				
• Total of assets	3641	4912	4585	2786	3453	3520	1244				
• Business type	COM	COM	COM	COM	COM	COM	COM				
• Ownership type	PRI	PRI	PRI	PRI	PRI	PRI	PRI				
The importance of use performance measures											
• Financial measures	* Imp	* Imp	* Imp	* Imp	* Imp	* Imp	* Imp				
• Customer measures	* Imp	Imp	Imp	Imp	* Imp	* Imp	* Imp				
• Learning and innovation measures	Imp	Imp	Imp	Imp	* Imp	* Imp	* Imp				
• Internal measures	* Imp	* Imp	Imp	Imp	Imp	Imp	* Imp				
• Community measures	Imp	Imp	Unimp	Unimp	Imp	Imp	Unimp				
Demographic information for bank and interviewee											
	AAB	ABCI	WFB	MB	ABTI	ATDB	UBTI	BCDB	ANB	DNB	AANB
Demographic information for bank and interviewee											
• Year with the banks	21	18	12	15	12	11	9	8	6	4	5
• Years in current position	8	7	8	12	8	8	7	7	5	3	5
• Total of assets	107	56	31	40	78	53	181	144	45	37	51
• Business type	COM	COM	COM	COM	COM	COM	COM	COM	COM	COM	COM
• Ownership type	PRI	PRI	PRI	PRI	PRI	PRI	PRI	PRI	PRI	PRI	PRI
The importance of use performance measures											
• Financial measures	* Imp	* Imp	* Imp	* Imp	* Imp	* Imp	* Imp	* Imp	* Imp	* Imp	* Imp
• Customer measures	* Imp	* Imp	Imp	* Imp	* Imp	Imp	* Imp	* Imp	Imp	* Imp	* Imp
• Learning and innovation measures	Imp	Imp	Imp	Imp	Imp	Imp	Imp	Imp	Unimp	Unimp	Imp
• Internal measures	* Imp	Imp	Imp	Imp	* Imp	* Imp	Imp	Imp	Imp	Imp	Imp
• Community measures	Unimp	Unimp	Unimp	Unimp	Unimp	Unimp	Unimp	Unimp	Unimp	Unimp	Unimp
* Imp = very important, Imp = important, *Unimp = very unimportant, Unimp = unimportant											

\* Imp = very important, Imp = important, \*Unimp = very unimportant, Unimp = unimportant



### 9.2.2 Comments on Contingent Factors

One of the main points of doing interviews is to look into and confirm some of the contingent factors that impact the use of different performance measures in the Libyan banks. The researcher obtained interviewees' opinions about possible factors that might influence their performance measures. Factors mentioned by interviewees could be classified into internal and external factors as follows:

#### A. Strategy effect

All the banks participating in the study agree on the importance of strategy as one of the factors that affect the use of performance measures in any organisation. Branch manager from large and small sized banks recognise the value of strategy as the statement, at a reasonable level of detail, of what the bank wants, plans, and expects to accomplish, which is less evident from the questionnaire analysis. In other words, they believe that strategy is a plan of action intended to accomplish specific goals.

As the branch manager in bank (GB), which is a large public commercial bank, said that:

*... A good strategy is supported by actuality. A suitable way to make our strategy communicate the reality is to apply the relevant efforts, perform appropriate experiments, and recognize major constraints and barriers, and then all of this should be translated into a plan of action. Thus, strategy is to somehow affect what the selection and use of performance measures.*

Also the CEO of bank (AAB), small commercial bank, said that:

*"...from my perspective, a strategy is essential for all aspects in managerial operations, due to it is as guidance to achieve organisation's objectives. For example bank that has an ambiguous strategy, like working in deviation than their goals without any alarm on and vice versa. Therefore, based on key role of the adopted strategy, of course, it influences somehow the performance measurement systems"*

Senior manager bank's (ABTI) contends that

*"It is not a matter of the size of the bank, the strategy is very essential to any business, due to currently achieving competitive advantage is related to adopt effective strategy. In general, Libyan banks are now more than past seeing that if they have an effective strategy like integrating long-term and short-term objectives, consider incentives, and controls and feedback they will perform better. In addition, if one bank has that and other does not, the competitive advantage is clear"*



## B. Organisational structure effect

Regarding organisational structure includes formalisation and centralization of power. Consequently, all eighteen interviewed banks agree about the importance of centralisation as one of the crucial elements to be successful banks. They stress that an effective and clear centralisation structure ensures that every member of staff will recognise his/her authorities and responsibilities. In addition, the centralisation structure is related to feedback and feedback loops of information, which helps in making the information flow from top-down and bottom-up. Interviewees argue that at the beginning a business, or changing from centralisation to decentralisation or versa, it is appropriate to consider advantages and disadvantages of each one of organisational structure than to another in achieving the organisational goals. The best structure for one type of business may not be the best for another. As a branch manager in bank (SREIB) put it:

*...Certainly, the level of centralisation as one of organisational structure form affect performance measures in any bank because, simply, it identifies the authorities and responsibilities in the bank. In addition, the size of the bank determines which form or level of centralisation is to be followed. For our bank, which is a large, it keeps on a very simple organisational structure linked to its owners (the Libyan government). Few hierarchies keep the work flowing effectively as a result, it ensures an effective decision making process.*

## C. Competition effect

Comments made on competition issues were various: the bulk of participating interviewees emphasize that competition is another important factor that may impact on the use of different performance measures, especially with exported competition which come from allowing foreign banks to work in Libya. However, only few banks (DB; SREIB; MB; WFB) made comments that they do not face very severe competition in their market because they provided limited and local services and just a few banks dominate the market or because their differentiation services are distinguished enough and do not need to be subject to competition.

The senior manager of bank (SB), which is large commercial private bank, his words contend that:

*...we are doing many customer surveys to know what the customer expects from us. In addition, we have to keep an eye on our competitors in order for*



*our service be distinguished because we are facing severe competition in our industry.*

The branch manager of bank (AAB), which is a small commercial private bank, said:

*...Although our services are very standardized that means that they have specific features that are customer-oriented, but old regulations from the Central Bank of Libya sometime restrict/affect our services which do not give us a room to add or change them, especially in international deals. Therefore, the only way to face competition and try to increase our market share is to be cost-oriented in order to reduce the costs, then in turn the price (rate of interest). We already have a big share of the Libyan banking market, we sometimes cannot consider competition is a big deal for us.*

Also, branch manager of bank (SRSIB), which is specialised public bank, says:

*... We have licenses from government to provide special services (very low interest rate for loans building) here in Libya. Our services are very standardized that means that they have a specific feature as a customer-oriented bank. We already have a big share of the Libyan banking market due to our service are usually not commercial to somewhat comparing with the price (rate of interest) for the same service in commercial banks, this come from the old socialism regulations that adopted by the Central Bank of Libya.; therefore, we are only agents for these services. Thus we do not face any competition concerning these services and we cannot consider competition is a big deal for us.*

#### **D. Technology effect**

Technology was another issue that is considered as an important factor affecting the performance measurement systems, interviewees have difference in their points of view. Some of them especially the large sized ones, believe that, by using the recent technology in bank services, will get a competitive advantage which will increase their market share and, in turn, increase their profitability. On the other hand, the small sized ones have not seen the importance of obtaining expensive recent technologies. They argue that Libya has an advantage in the relatively cheap labor force that have to benefit from, In addition, they stated that they cannot afford this very expensive technology.

The branch manager of a bank (WB), which is a large commercial private bank, had put it:

*... We have worked to upgrade almost every year, which enables us to acquire the recent technology in the banking industry. Simply, It helps us to*



*increase the quality of our services and to keep us very competitive in the Libyan market. And of course, the type of technology used is related to the use of performance measures.*

On the other hand, the senior manager of bank (DNB), which is a small commercial private bank, said:

*...from my perspective, I think that technology is an important element to impact on the use of performance measurement systems, but we cannot afford to upgrade our services regularly; because we do not have enough funds to do so. In addition, our services are limited to the local field, we do not need to obtain the latest technology, what we have is enough to achieve our objectives.*

Moreover, the senior manager of bank (GB), which is a large commercial public bank, said:

*... I agree that technology is an essential factor that affects performance measures in any business: but, we have to mind the cost-benefit analysis of this decision. In other words, before investing money in acquiring recent technology, we have to be sure that it words that money and that the return from this investment is worthwhile. We know that our bank is big; therefore, we manage our available resources in the best way that fits our goals.*

### **E. Total Quality Management**

All the participant interviewees agree that the adoption of advanced management techniques, regardless of the size of the banks, is the key element that affects what practices of performance measures can be used in their systems. They state that there might be some forms of management practices like TQM that fit the large sized bank and other that fit the small sized bank. Thus, it was concluded from the views or interviewees that the level of use of total quality management aspects within organisations do vary considerably according to the size of bank. Also, interviewees state that managers have to perform many management practices in a bank and how they handle various situations will depend on their style of management. As implied by their views that management practices lie along a continuum from the management forms. This continuum is related to the structure of the bank and, therefore, ranging from the traditional to modern forms. It was concluded from the interviewees comments that as the size of the bank promotes the ability to use of modern management practice like total quality management increase, which in turn pushes that management towards the flexibility that allows



employees to take part in decision making and also gives them a considerable degree of independence in completing routine work activities, and vice versa.

The CEF of bank (WB) large commercial private bank, stated,

*... Our bank is a large bank, thus the chairman cannot control and manage all the routine work and all the details. Therefore, he needs to adopt modern management approach in order to delegate authority to his subordinates to make certain decisions. When the boss finds that we can manage this type of practice properly, major decision such as investment decision need to be taken after participation and decision. Usually, these decisions are discussed in the Board of Directors meeting, which can offer useful suggestion and ideas. This adoption of total quality management as a modern technique will impact on the use of performance measures.*

The branch manager of bank (ABTI), which is a small private commercial, put it in this way:

*This bank has started as local small business, then, we extended it to include a few investors and combine with other small local banks, but it is still small related to other banks in the marketplace. Therefore, we do not have too many hierarchical levels, which means the general manager should make most important decisions and closely supervise and control workers and employees. There could be some consultation with head of departments over issues and listen to their feedback or opinions. However, the general manager will make the actual decisions, which is in the best interests of the work and the workers. as a result, I think that the TQM has minor impact the use of performance measures at least in small bank like us.*

#### **F. Environmental uncertain effect**

All interviewees agree on the importance of environmental uncertainty as one of the factors that affect the use of all managerial systems, especially performance measures. Organisations must manage and supervise uncertainty to be effective. Uncertainty means the decision makers do not have sufficient information about environmental factors, and they have a difficult time predicting external changes. Uncertainty increases the risk of failure for organisational responses and makes it difficult to compute cost and probabilities associated with decision alternatives. This environmental uncertainty includes a large number of external elements that make up the organisation's domain, and in turn, creating a complex environment. For example, increased competition, rapid technological breakthroughs, changing exchange rates, and the unpredicted governmental regulations. However, it was concluded from the interview that, although all banks in all sizes are facing a greater



level of complexity and change, but not all are exposed to environmental uncertainty by the same degree.

The senior manager of bank (SB), which is a large commercial public bank, argues that:

*...indeed, environmental uncertainty is an important factor, which should be taken into consideration while designing performance measures. However, in our industry that depends on intangible services, which is a standardised service. We cannot say that the environment is very unstable. Although, we might be exposed to some changes from the Central Bank of Libya regulations, I cannot consider it a turbulent environment. When a large number of elements impinging upon the bank and they shift frequently or react strongly to organisational initiative and several sectors change simultaneously then we can call the environment turbulent.*

On the other hand, the branch manager of bank (AAB), which is a small commercial private bank, stated:

*... As is well known, in recent years the Libyan environment faced by the banking industry has been characterised by changing governmental regulations, and uncertainty regarding the rate of interest of services and collection of credit customers. I believe that our bank because it operates in that uncertain environment. it becomes more market oriented since we can call clearly see a direct effect of the market orientation on our performance.*

Lastly, senior manager of bank (WB), which is a large commercial private bank, said:

*...Banks are in continuous interaction with the environment; therefore, an environment is considered the primary sources of opportunities and threats to any bank. However, managers need detailed information about that environment for making sound decisions, but that information is never complete that is why there is always uncertainty. In our bank, we have planners who scan environmental elements and analyses potential moves and countermoves by other competitors. Therefore, it helps us to provide new services at the right time. All what we are trying to do is to minimize the negative effects of the environmental uncertainty as you cannot avoid it completely. So, this consideration will influence the way of use performance measures.*

### 9.3 Summary

This chapter analysed the interview method of data collected. Interviews reveal important insights that help to provide further interpretations to the survey results. Most interviewees, in either the large or small sized banks, seemed very supportive to the importance of the use of different performance measures, although the degree



of this support might vary between different performance measures. They were more enthusiastic about having non financial measures along with the traditional financial measures. They contend that in reality all these measures should be used even though their importance might vary from characteristics of banks to other. They also stressed that there no business nowadays can analyses performance with only the financial measures. Hence, customer relations and market share changes seemed very vital to any business, in addition to motivating the staff towards creating new ideas, services and market. Moreover, issues such as services quality and in time delivery have become of paramount importance to any business. Such observations support the findings of the questionnaire survey which suggest that, most Libyan banks apply mixture performance measurement systems.

In addition, results from the interviews provide more support to the results from the survey. All the participating managers, whether from large and small sized banks, agree that strategy, centralisation as organisational structure, total quality management and environmental uncertainty are of crucial importance to the use of different performance measures. However, they highlighted that these factors should fit the organisational size of bank, therefore, each bank should adopt the form of strategy, centralisation, management quality system and environmental uncertain that fit with its environmental and organisational circumstances.

Competition and technology were the most debatable issues, although the participating manager agreed on their importance. For competition, most of the managers of large and small sized banks stated that in some extraordinary conditions, such as standardised services or governmental protection, this factor has no great importance. For technology, the two teams of large and small sized banks differed because of their organisational size. Large sized banks found it very justified in investing and acquiring recent technology that helps them to improve their services quality and price-wise, which in turn will make them more competitive in the local and international market. On the other hand, small sized banks stressed that their investment in latest technology is linked to the limited financial resources. Banks with limited financial resources cannot expand their business to include high-tech equipment and technical assistance necessary to teach staff how to use it. Simply, when calculating the cost of this equipment, it also



should include start-up expenses and the price of regular maintenance, service agreement and the cost of staff training needed to integrate the requested equipment into its current configuration. Consequently, if all this investments is not justified in terms of financial resources availability, payback period and other criteria, it is not worth investing in advanced technology.

Finally, the result were in line with what Wang and Ahmed (2003) contend that as the organisational size increased, the complexity grew and it became difficult to exert controls and influence for effective organisational functions. This might be because of the magnitude of factors that affect management control systems in these organisations. Therefore, the need arises to consider more factors that affect performance measures when designing and using these management control systems. This might provide an explanation for the differences in results between the small and large sized banks in Libya.



SUMMARY CONCLUSIONS AND RECOMMENDATION

CHAPTER TEN



### 10.1 Introduction

Burns and Scapens, (2000) claim that the environment in which management accounting operates has changed resulting from advances in information technology, competitive markets, different organisational structures and new management practices. For dealing in these changes, organisations are now placing more weight on integrated non-financial performance measures into their performance measurement systems and this has been the main motivation to study this process by carrying out this study.

This study is an effort to give a better understanding of what type of performance measures are used in Libyan banks, and how characteristics/particularities' of these banks control the type of performance measures selected to apply in their performance measurement systems. Also, this study has made an attempt to provide a deep comprehension of the usages/applications of performance measures through several dimensions (i.e. importance to long-term success, managerial performance evaluation, financial reward system, identification of improved opportunities and the development of action plans, and measurement quality). In addition, this study has employed the contingency theory theoretical framework to examine the contingent relationships between business strategy, organisational structure, environmental uncertainty, intensity of competition, advances in technology, total quality management and the extent of use of both financial and non financial performance measures. Furthermore, the study has utilised and redefined, and then analysed the previous studies which deal with the field of management accounting literature by several researchers concerning performance measures. An examination of the literature points out that the determination of the extent of performance measures used differs between researchers. In this regard, researchers (e.g. Ittner, et al, 2003; Speckbacher et al., 2003) have measured the extent of performance measures by using a self-rating question of the number of performance measures implementation. Other researchers (e.g. Hoque and James, 2000; Olson and Slater, 2002) have defined the extent of performance measures usage as multi-measures sets of both financial and non-financial performance measures. Therefore, it can be noted that no reliable statement can be made from previous research about how this approach has been implemented by firms because many of the performance measures concepts and relationships are open to several interpretations (e.g. types and number of



measures). Thus, developing a valid measure of the extent of performance measures used would be useful to both academics and researchers to further explore its context (Chenhall, 2003; Norreklit, 2003). This study follows the previous studies in terms of developing a wider, accurate and comprehensive view of the extent of performance measures used. Thus, three stages have been utilised to determine by the actual extent of performance measures used. The first stage was used to identify the types of performance measures that are adopted by the Libyan banks. The second stage was determining the measures that have been adopted by the different banks (according to their particularities). The third stage was utilised to ensure that the selected measures are really used in performance measurement and evaluation purposes. Finally, this study is one of the first to incorporate several contingent variables in one model and investigate their effect on the extent of performance measures used.

In chapters one and five the major objectives of this research were set as follows:

- 1) To review and identify the type of financial and non financial performance measures used in Libyan banks.
- 2) To compare the type of performance measures that are utilized by Libyan banks according to their typologies/characteristics.
- 3) To assess the function of financial and non financial measures for evaluation of performance and different purposes.
- 4) To examine whether the use of financial measures has impacted upon the use of non financial measures of the Libyan banks.
- 5) To determine the impact of individual contingent factors on the use of different performance measures.
- 6) To analyse the impact of joint selected factors on the use of financial and non financial measures in Libyan banks.

## **10.2 The Research Findings**

In order to accomplish the above objectives, a questionnaire survey and semi-structured interviews were conducted to examine the current use of financial and non financial performance measures and to determine factors of interests and to investigate the hypothesised relationships between the independent variables (i.e.



contingent variables) and the dependent variables (i.e. the extent of use of both financial and non financial performance measures).

Descriptive statistical analysis using means and percentages were utilised to achieve the first and third objectives of the research. Inferential statistical tests using independent t-test and One Way ANOVA to achieve the second objective, while Multivariate statistical techniques, namely, Pearson correlation and multiple regression were also used in this research to reach the fourth, fifth, and sixth objectives. This chapter provides a summary of the main research findings resulting from the descriptive and analytical statistics. Also, the contributions of this research to both academics and managers are presented. In addition, the limitations of this research are outlined followed by suggestions relating to future research.

### **10.2.1 The findings of the descriptive and inferential statistics**

It has been indicated in the previous section that descriptive and inferential statistics were used to meet the first, second and third objectives of this study. This was conducted by an in-depth review of previous studies in three aspects: Firstly, examining the importance of adoption of a broader set of performance measures. Secondly, investigating how the characteristics of banks are dealing with the adoption of performance measures. Finally, exploring the use of financial and non financial measures for multiple purposes (i.e. as an important driver for long-term organisational success and their corresponding use in performance measurement and evaluation purposes like managerial performance evaluation, financial rewards and the identification of improvement opportunities and development of action plans and quality of these performance measurements). Tables\*\*\* 10.1 and 10.2 show the findings regarding financial and non financial measures adopted of performance measurement systems by different Libyan banks.

For the purpose of the first objective, it could be noted from the table 10.1 that Libyan banks adopt a mixture types of financial and non financial performance measures with reliance on financial measures as reported in the questionnaire analysis (shown in chapter six) and as also reported from the comments of the interviews (shown in chapter nine). This is in line with some previous findings such as Perera et al., (1997) note that changes in organisations strategies that emphasise

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\*\*\* Table 10-1 and 10.2 summarise the descriptive and inferential results from tables 6-13 to 6-17 in chapter six about the use of financial and non financial performance measures in Libyan banks.



quality, flexibility, dependability and low cost should be reflected in formal performance measurement systems to place greater weight on non financial measures. Nevertheless, some exceptions have been noticed through some managers' responses such as the case of the commercial banks, which Commerce and Development Bank (private bank), which have mixed features, the manager mentions that the nature of services in banking industry (e.g. intangible services that depends on human resources) hampers, to some extent, the use of some non financial measures i.e. customer measures, which in turn forced them to be more financial oriented instead of customer-oriented. Simultaneously, they need to achieve the requirements of the domestic market, especially, after the change in Libyan economic environment, so, the customer is one of the drivers for successful organisations. Furthermore, Brown and Laverick, (1994) and Butler et al, (1997) state that the contemporary business environment leads to the limitations of the traditional financial measures. As a result of this a broad range of measures concerning non financial aspects such as quality, customer and employee satisfaction could be used to create greater insights into the factors which drive financial performance. The importance of different combination of performance measures was in line with Butler et al. (1997) who found out that performance measures employed by different organisations vary. Different markets, strategies, and competitive environments require a mixture of performance measures. An organisation which adopts performance measures which fit its strategy, technology and culture amongst other components. For the case of the company they investigated, it was clear that the executives of the company agree that reliance on financial criteria set is a constraint on the development of their performance measures combination. They believed it did suit their needs and felt comfortable with it this way. In other words, performance measures have to be tailored to the needs of each company.

The findings from the survey and interviews lead to the fact that any bank must apply a set of financial and non financial measures. However, respondents disagreed on the importance level of each performance measure, they state that measures' importance might differ according to the circumstances/characteristics of the bank. These findings were in line with Rouse et al. (2002), who studied performance measurement systems in an American aircraft company. They state that the newly implemented performance measurement system should recognize not only a need



for financial indicators but also non financial measures to accommodate the diverse management tasks of different stakeholders. They highlighted that every organisation has its own unique internal and external environments; therefore, performance measures should be selected that are capable of presenting a comprehensive, integrated and activity-related view of complex business circumstances. In the same context, Hussain and Gunasekaran (2002) examine the use of performance measures in Japanese banks, they found that financial measures (such as profits, revenue generated, rate of return) are important, and although most of the banks studied in this study do acknowledge that non financial measures are also important, our research found that, in practice, non financial measures (e.g. quality, customer satisfaction, social responsibility) do not receive the same degree of emphasis as financial performance measures. In addition, Hussain, (2003) conducted comparative study for twelve banks in three different countries (Finland, Sweden and Japan). He anticipates that, in banking industry management has been forced to improve and measure financial performance in order to survive in the hostile banking world, as well as, at the same time, improving and measure non-financial performance in the organizations. Also, Ittner and Larecker., (1998) said many organisations are supplementing or replacing their traditional financial measures with nonfinancial performance indicators. However, the findings are to some extent different from that what Ittner et al., (2003) found how different types of performance measures are weighted and used for performance evaluation and compensation purposes by financial services firm. They found that financial services organisations are placing most weight on financial measures for compensation purposes, but incorporating financial with non financial measures to evaluate performance.

For purpose of the second objective, table (10.1) and (10-2) show descriptive and inferential analysis findings respectively to compare the type of performance measures adopted by Libyan banks according to their typologies/characteristics, namely about the importance of financial and non financial measures that have adopted by all subgroups in four banking categories. From the tables, it could be noted that respondents have not agreed on the same degree of importance of adoption of each performance measure, their overall answers (shown by means) and statistical analysis show that the majority of performance measures are of different degree of importance of adoption according to banks' characteristics/particularities.



Concerning the type of strategy category that divided banks into three sub groups according to Miles and Snow (1978) classification (prospector, analyser, and defender sub groups), table (10-1) shows that banks with the prospector strategy are adopting more non financial measures in their systems than other banks, namely, the banks are adopting more non financial measures than banks with analyser strategy, while they are, to a large degree, different than banks defender strategy. On the other hand, table (10-2) reveals that there is no significant difference in the importance of adoption of financial measures, however, there is significant difference between all sub groups about the importance of adoption non financial measures (all). This means that the type of strategy that orientates for bank's business has an impact on the degree of importance of adoption of non financial measures. The findings are in agreement with Ittner et al., (1997), who found that "the relative weight placed on non-financial measures is greater in firms following an innovation orientated 'prospector' strategy than in firms following a cost leader or 'defender' strategy, in that way suggesting that an organisation's competitive strategy is perhaps a crucial determinant of the performance measures". However, in respect of financial measures the results of this study mention that there is no difference between all sub groups. This is not supported by some studies like Byles and Labig (1996) who found that defenders set more significance on financial measures than do prospectors. In general, this is also consistent with the findings of many other researchers who have used the Miles and Snow (1978) typologies to examine the impact of different strategic orientation in their studies (Byles et al., 1996; Castle, 2003).

With regard to the type of business and the size categories, Fitzgerald et al., (1991), Biema and Greenwald., (1997), Hussain and Gunasekaran., (2002), and others, confirm that the particularities/ characteristics (i.e. size, type, etc) have an effect on the use of non-financial performance measures.

The findings from table (10-1) indicate that there are no differences between commercial and specialised banks regarding the adoption of performance measures. The commercial banks placed greater importance on financial measures and relatively little on non-financial measures. Specialised banks, also, placed somewhat greater emphasis on financial measures than non financial measures. These results seem to be in line with previous studies that the nature of business will tend to rely more on financial than non-financial information (Brignall, 1997; Hussain and



Gunasekaran., 2002; Morissette, 1998). This is reflected in the outcomes from the interviews. In addition, table (10-2) shows that there are no significant differences between commercial and specialised banks regarding the importance of adoption of financial and some non financial measures, whereas there are significant differences about the importance of adoption of remaining non financial measures (customer and learning and innovation). This is consistent with Hussain and Gunasekarn..., 2002 who showed that the type of bank affects the selection and use of non financial measures.

In contrast, the size category, the table (10-1) reveal that large sized banks seem to pay high degree of attention to the importance of adoption of financial and non financial performance measures rather than small sized banks. This result is supported by Fitzgerald et al. (1991), Brignall (1997), Biema and Greenwald (1997), and Hoque and James (1998) who identified that organisational sizes that large organisations varies in terms of the use of performance measures from smaller ones, however it is not consistent with Hussain and Gunasekaran., (2002), who found that the size of bank does not have such a significant impact on the use of non-financial performance measures in banks. In the same context, table (10-2) reports that both large and small sized banks are not different for giving the importance of adoption financial and non financial measures, however, they are only different in the importance of adoption of learning and innovation measures.

Relating to the bank ownership category that divided the sample into public and private banks, as can be seen from table (10-1) public banks report less dependence on financial and non-financial measures than private banks. Public banks are focused on protecting their high market share from new entrants. In contrast, the private banks are prospectors and analysers and these findings emerge to be in harmony with the results of Byles and Labig (1996) and Miles and Snow (1978) that prospectors likely to be product and market pioneers. While table (10-2) shows that there are no significant differences between public and private banks for the importance of adoption of financial and non financial measures.

These results might be because the Libyan banks' openness that began in since 1999, and this study was conducted during a period when the banking industry remained in a highly uncertain economic, regulatory and commercial environment (Alkaziza, 2005). In that regard, the results in this study seem to be consistent with suggestions by the contingency perspective that organisational factors (e.g. type of



industry and characteristics, etc.) will affect the performance measurement system (Cobb et al., 1995).

For the purpose of the third objective, the results\*\* suggest that all sub-group banks are still aware of financial measures as an important source of information to achieve bank objectives; beside they are in line with the increasing importance of including some measures of non financial measures-customer and learning and innovation- in performance measurement systems. This result is supported by some authors (e.g. Kaplan, 1984 and Guenther and Gruening, 2002). In addition, all sub-groups use financial measure to evaluate managerial performance more than use of other non financial measures. Also, prospector, commercial, large and private sub-groups banks tend to use financial and customer and innovation and learning measures to evaluate managerial performance. This result is similar to the ideas suggested by some researchers (e.g. Chenhall and Morris, 1986; Otley, 1999) in which they indicate that targets should be set for both financial and non financial performance measures in order to evaluate managerial performance. Furthermore, the sub-groups have the same tendency to use financial measures more than non financial measures with a higher level for prospector, private, large and commercial sub-groups banks than other sub-groups. This result supports the idea suggested by Banker et al, (2004) in which they indicate that organisations should use both financial and non financial performance measures to improve decision making and problem solving. Moreover, results indicate that the banking sub-groups are still depending on traditional financial performance measures with as the predominant measure to reward managers, beside the increasing use of some non-financial measures -customer, and learning and innovation to reward managers. The findings do not therefore support the recommendations suggested by several researchers (e.g. Ittner et al., 1997; and Banker et al.,2000) to link the non-financial performance measures with executive compensation plans. The results also show that their banks consider the quality of information to be sufficient in respect of financial, and then customer and learning and innovation measures. This suggests that information about financial, customer, learning and innovation are valued by the responding sub-

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\*\* Tables 6-18 to 6-22 in chapter six show that the five dimensions/purposes (i.e. the importance of long term organisational success; evaluate managerial performance; reward system; identification problems and plans; quality of measures) of use financial and non financial measures in Libyan banks.



groups as an important source of information to face competitive marketplaces. Thus, it can be concluded that the respondents agreed on the ability of financial and some non-financial performance indicators to provide accurate and meaningful measures. This result is consistent with the argument raised by several researchers (e.g. Chenhall and Morris, 1986; Ittner and Larcker, 2001) to include non-financial performance measures in the performance measurement systems in order to provide information that reflects the attributes of these indicators.



Table (10-1)\* Summary of Descriptive Analysis of the Use of Financial and Non Financial Performance Measures

PMs	The level of use			Mean	SD	TOSTRCAT			TSBCAT		SIZCAT		TOWCAT	
	Percentages%					PRO	ANA	DEF	COM	SPE	SB	LB	PRI	PUB
	1/2	3	4/5											
Financial Measures	10.9	17.2	71.9	4.001	.8235	4.246	3.989	3.781	4.142	3.551	3.809	4.161	4.152	3.810
Customer Measures	25.6	25.8	48.6	3.310	.8903	3.991	3.622	2.716	3.315	3.297	3.246	3.364	3.523	3.183
Learning and Innovation Measures	13.0	17.5	69.4	3.900	.71695	4.153	3.911	3.635	4.108	3.238	3.660	4.100	4.105	3.641
Internal Business Measures	22.9	27.3	45.8	3.302	.7403	4.032	3.120	2.889	3.422	2.923	3.139	3.438	3.374	3.122
Community Measures	36.6	20.9	42.6	3.254	1.085	3.491	2.778	3.604	3.285	3.154	3.127	3.393	3.132	3.458

TSBCAT = Type of Business category, OW/CAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. PMs =average of overall performance measures statements .1/2=the textual summaries to aggregate strongly disagree and disagree responses which equal to "Not used", 3= a neutral response, 4/5= the textual summaries to aggregate strongly agree and agree responses which equal to "Yes used"

Table (10-2)\* Summary of Inferential Analysis of the Use of Financial and Non Financial performance Measures

Statements	One Way ANOVA For sub-groups in TOSTRCAT			Independent Sample T-test For sub-groups in TSBCAT		Independent Sample T-test For sub-groups in SIZCAT		Independent Sample T-test For sub-groups in TOWCAT	
	F	Sig		F	Sig	F	Sig	F	Sig
Financial Measures	3.675	0.082		0.093	0.761	1.028	0.312	3.817	0.052
Customer Measures	52.495	0.000*		7.908	0.006*	0.155	0.694	0.002	0.964
Learning and Innovation Measures	48.742	0.000*		26.196	0.000*	15.243	0.000*	3.160	0.077
Internal Business Measures	6.188	0.003*		0.104	0.747	0.450	0.503	2.895	0.091
Community Measures	17.691	0.000*		6.965	0.069	1.294	0.257	1.191	0.277

TSBCAT = Type of Business category, OW/CAT = type of ownership category, SIZCAT =Size of bank category, TOSTRCAT = Type of strategic orientation category. SB = small sub-group banks, LB = large sub-group banks, PUB = public sub-group banks, PRI = private sub-group banks, PRO= prospector strategy sub-group banks, ANA= analyser strategy sub-group banks, DEF= defender strategy sub-group banks, COM= commercial sub-group banks, SPE= specialised sub-group banks. PMs =average of overall performance measures statements. Independent Sample T-test is to compare means for two sub-groups of category/causes. The subjects should be randomly assigned to two sub-groups. One Way ANOVA is to produces an analysis of variance for one treatment factor to test the hypothesis that several means are equal. In addition to determining that differences exist among the means, may want to know which means differ by running a priori contrasts or post hoc tests. Used with no repeated measures, between-sub-groups designs, when the independent variable has more than 2 levels.

\* Table (10-1) summarise tables 6.13.1 to 6.17.1 in chapter six  
\* Table (10-2) summarise tables 6-13-2 to 6-17-2 in chapter six



### 10.2.2 The results of the Multivariate statistic

It was pointed out earlier that correlation and multiple regression were utilised to achieve the fourth, fifth and sixth objectives of this research (the investigation of the impact of business strategy, centralisation, environmental uncertainty, intensity of competition, total quality management, technology on the extent of performance measures used). A summary of these results is presented in the following sections:

For the purpose of the fourth objective, the results\*\* indicate that the correlations among different uses of performance measures are significant in some cases. For example, financial measures have a positive insignificant correlation with customers, learning and innovation, and internal business measures. This suggests that these performance measures could be complementary to financial measures. With regard to customer measures, they have a positive insignificant correlation with learning and innovation measures and internal measures, which suggests that these measures are also complementary to customer measures. There is also a correlation, as can be seen, between learning and innovation measures and internal measures, that is, these measures are complementary to each other. These results are supported by the findings by Ittner, and Larcker's (2001) in American financial institutions. In contrast, community measures are negative insignificant correlations with all performance measures used, this provides that there is evidence that community measures are perceived to be substituted with the remaining measures. This result does not attract any support from the literature and it is against Ittner, and Larcker's (2001) findings.

For purpose of the fifth and sixth objective, the table (10-3) shows that the findings identify certain variables to be of crucial importance when using these performance measures. The majority of the results concerning these factors were in line with previous studies, Simons (1987) states that researchers have been paying attention in perceptive relationships between control system design (which includes performance measures) and organisational variables such as size, technology and environment. In addition, from the findings, it could be noted that, while the

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\*\* the results shown in table 7.9 in chapter seven which correlation between the importance of different performance measures as driver for long term organisational success.



organisational size increases the consideration of these variables being taken into account increases too.

**Table (10.3)\*\* A summary of influence of contingent variables/factors of the use of performance measures in small and large the Libyan banks**

Variables	FINAN		CUSOM		INNOV		INTRN		COMM	
BANK SIZE	SB	LB	SB	LB	SB	LB	SB	LB	SB	LB
COMPIT	Ns	Ns	S	Ns	Ns	Ns	S	Ns	Ns	Ns
CENTR	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
TQM	S	Ns	Ns	Ns	Ns	S	Ns	S	Ns	Ns
STRA	Ns	Ns	Ns	Ns	Ns	Ns	S	S	Ns	Ns
PEU	Ns	S	Ns	S	Ns	Ns	Ns	S	Ns	Ns
TECH	Ns	S	S	Ns	Ns	S	S	Ns	Ns	Ns
The whole model	S	S	S	S	Ns	S	S	S	Ns	Ns

FINAN = the use of financial measures, CUSOM = the use of customer measures, INNOV = the use of learning and innovation measures, INTRN = the use of internal business process, COMM = the use of community measures, COMPIT= Competition, CENTR= Centralisation, TQM= Total quality management, STRA= strategy, PUE= Environmental uncertainty, TECH= Technology, SB= small group banks, LB= large group banks. S = significant influence/effect, Ns= insignificant influence/effect

With regard to the relationships between different performance measures and strategy, in small sized banks, strategy was found to be insignificant with four of the five types of performance measures. In large sized banks, it was also insignificant with the same four of these five performance measures types. These results suggest that applying more than one type of performance measures is not, to somewhat, depending on corporate strategies. This result (shown in the summary in table (10.3) and the comments of the interviews in chapter nine) is consistent with some previous studies. For example, Kalagnanam and Lindsay (1998) conclude that there is little present evidence that the successful use of performance measurements is strategically driven. In addition, Ittner and Larcker's (1998) find out that current initiatives to link long-term strategies to short-term actions have yet to prove successful. Moreover, Epstein and Birchard (2000) indicate that executives always have had difficulty making the systems for organisation strategy, performance evaluation, business- unit strategy, and reward work as one. However, this result is not in line with the number of previous studies which confirm the link between performance measurement systems and strategy. For example, Daniels and Burns (1997) state that performance measurement system is definitely related to strategy form, which has a critical element to play in the advancement of organisations. In addition, many authors (e. g. Merchant, 1985) suggest that there is a want for

\*\* Table (10.3) summarise the results shown in tables 8.2 to 8.6 in chapter eight about the regression analysis findings for using performance measure .



connection between the firms' performance measurement systems and their strategies in order to achieve more effective control.

In reviewing the relationships between different performance measures and organisational structure as a level of centralisation, in small and larger sized banks, centralisation was found to be insignificant with all the five types of performance measures. These results (shown in the summary in table (10.3) and the comments of the interviews in chapter nine) were in line with what was found in the literature about the insignificance of structure, for example Johnson and Kaplan, (1987) argue that justification of this insignificant relationship maybe based on the fact that today many organisations focus on team-working and employee participation and this may result in new and flexible approaches to the design of performance measurement system. On the other hand, Chenhall and Morris (1986) indicate that the decision making process depends on the level of centralisation structure and based on formal management control, while the use of non-financial performance measures is connected essentially with the operational levels in the organisational hierarchy. Therefore, a change in organisation structure, with the greater use of team-based structures would lead to a greater reliance on non-financial information (Baines and Langfield-Smith, 2003). On the other hand, the results are not consistent with a number of previous studies which mentioned that structure is an important element for use of performance measurement, as such as, Thompson (1967) highlights the importance of the structure for any organisation by stating that, structure refers to internal patterns of organisation relationships; in addition, Wang and Ahmed (2003) conclude that the current dynamic environment inevitably raises the importance of organisational structure. This importance is to develop new types of organisational forms that facilitate knowledge management, in particular knowledge flow. Furthermore, Piercy and Cravens (1994) state that the current vulnerable global circumstances (i.e. intense competition, instable political systems, rapid technology amongst others) lead to development of structure as part of the solution for effective control.

It was also found that competition is significant with only two types of performance measures; namely, customer measures and internal business process in small sized banks, see the summary in table (10.3). On the other hand, in large sized banks, competition is insignificant with all types of performance measures. However, results from interviews, see the comments of the interviews in chapter nine, raise



another important point related to the competition factor in Libya. Whilst the vast majority of the interviewees agreed on the importance of competition, they highlighted that the competitive environment in Libyan banks is at transition to competition or low competition because many banking activities are still the a monopoly from the Central Bank of Libya, the standardised nature of their services or the slow progress of the privatisation program for large public banks in Libya.

The result in this study suggests that the competition is not really one of the motives that played a significant role in the use of financial and non financial performance measures. This finding is in line with what Hussain and Gunasekaran (2002) which indicate that where competition is not high, banks may not need to think of non financial performance measures like customer satisfaction as much, but increases must be considered of high competition in which there is risk of losing customers exists.

Surprisingly, this finding is not in agreement with a broad set of previous findings or statements in the literature (see, for example, Johnson and Kaplan, 1987; Fitzgerald et al, 1991; Fisher, 1992; Hemmer, 1996; Brignall, 1997; Itner and Larcker, 1998; Neely, 1999; Hussain and Hoque, 2002; Cooper and Ezzamel 2004; Hussain, 2005; Abdel-Maksoud, 2008; Laitinen, 2006; O'Connor et al, 2008).

Technology was introduced as a major explanatory variable of the effectiveness of a management accounting system (see for example; Daft and Macintosh, 1978; Otley, 1980). In large sized banks, this factor was found to be significant with two types of performance measures; namely, customer and innovation and learning measures. However, technology was found to be a significant variable with two types of performance measures in small sized banks, namely, financial and internal business measures. These results regarding technology (see in table (10.3) and the comments of the interviews in chapter nine) were in line with other studies conducted in the field of management accounting techniques using a contingency approach (e.g. Ezzamel, 1990; Libby and Waterhouse, 1996; Hoque and James, 2000, Hussain and Gunasekaran., 2002). In addition, the results on the influence of technology were in line with previous studies conducted in this area that provided some evidence to indicate that organisational size is an important factor in making a firm adopt new technology (Yao et al., 2003; Khazanchi, 2005).

The results of the significance of technology with customer and innovation and learning measures in large sized banks were consistent with other studies. For



example, Hussain and Gunasekaran (2002) argue that, in banking industry, technology has had an impact on measuring as well as improving non financial performance. The bank uses a high level of technology that can be tracked many non financial aspects like quality services and customer, by offering cheaper and timelier services to fulfil customers' demands in banks, however, technology would not be used if competition was not so high. In addition, Mulani and Lee (2001) states that Dell Computer Corporation applies technology to satisfy customers. The company utilises technology that includes using the internet to view Dell's requirements, , and confirm their ability to meet delivery requirements. This shows that the alignment between information technology and manufacturing practices enhances the abilities of companies to meet and satisfy their customers.

Furthermore, Srinivasan et al. (1994), Gupta and Somers (1996), and Sakakibara et al. (1997), amongst others, state that large firms that develop advanced production technologies are better aligned to performance measures such as customer satisfaction and short manufacturing lead times.

The management accounting literature has supported the idea that organisations implementing total quality management initiatives are associated with a greater use of non-financial performance measurements (Banker et al., 1993; Perera et al., 1997). Dale et al., (1997) argue that today's global competitive markets require improved quality of services with a focus on the customer's issue, and total quality management refers to the ability to achieve and sustain a continuous improvement through customer satisfaction, quality and participation (Johnson and Kaplan, 1987). In table 10.3 indicates that the use of total quality management has an impact on the use of performance measures in large and small sized banks. This result is consistent with previous studies (see e.g. Chenhall,. 1997; and Sim and Killough,. 1998) who argue that the application of total quality management strongly associated with the use of non-financial performance measures. Based on the above arguments and findings, it can be concluded that the extent of usage of TQM plays a major role in using more non-financial performance measurements. In this context, Bhimani (1994) provided evidence from UK organisations that the adoption of TQM was matched with the usage of non-financial performance measures.

Environmental uncertainty is found to be significant with the use of financial, customer and internal business process measures in large sized banks. On the other hand, this significance has decreased in small sized banks to be insignificant with the



environmental uncertain (shown in the summary in table (10-3) and the comments of the interviews in chapter nine).

Interpreting the contradictory results is somewhat difficult, taking into consideration that earlier studies have confirmed the positive relationship between environmental uncertainty and the use of financial and non-financial performance measurements (e.g. Govindarajan, 1984).

In general, the literature shows that there is evidence about the impact of uncertainty of the economic environment on the type of performance measures to be used. Some of the studies (e.g. Chenhall and Morris, 1986, Brignall, 1997, Morissette, 1998, and Hoque, 2004) found that confirmed that non financial measures are suitable for measuring performance under the effects of the high levels of uncertainty. On the other hand other studies (e.g. Lynch and Cross, 1995 and Hussain and Hoque, 2002) found that organisations facing a high level of economic uncertainty are likely to use financial performance measures to a greater extent than non financial performance measures. However, an empirical study by Verbeeten (2004) revealed that environmental uncertainty has no impact on the usage of financial and non-financial performance measures.

Therefore, this research finding is consistent with previous studies that confirm the effect of environmental uncertainty of the use performance measures (whatever the type).

### 10.3 Research Contribution

On the light of the literature review and based on the findings of this study, this study contributions are:

Firstly, it is important to note that most previous research is theoretical in nature or is primarily practitioner based case-studies. This research has however been empirical utilising multiple research methodologies in order to gain a clearer picture and increase understanding by providing theoretical framework of how performance measures operate and what are the contextual factors that may impact on performance measurement processes in transitional economies. Thus, this research adds a broader dimension to current literature about performance measurement in the banking sector, and contributes to bridge the gap in literature the developing countries, namely Libya.



Secondly, in order to address the criticisms about the use of balanced scorecard's measures which are limited to four pillar measures which do not take into account of all of an organisation's stakeholders (Norrekkitt, 2003; Gering and Venkatramen, 2000; Clarke, 1997; Kaplan and Norton, 1996). Consequently this study examines a wide range of financial and non financial measures including community performance measures within different categories in Libyan banks (e.g. state-owned, private, commercial, specialised, small and large). Therefore, this study is theoretically original in that it provides support for the research that has been suggested, or response to call made by scholars (e.g. Bruggeman and Slagmulder, 1995) that the use of measures relates to community within performance measurement systems is essential needed.

Thirdly, this study applied contingency theory to performance measurement that researchers have argued offers a representation of impact of internal and external contextual factors on the organisational systems. It was expected that the outcome would be more true to the literature by presenting useful analytical way to understanding the effect of the contextual factors of the use of performance measurement. Furthermore, much of the literature (e.g. Waterhouse and Tiessen, 1978; Otley, 1980; Innes and Mitchell, 1990; Fisher, 1995; Jermias and Gani, 2005; Zarzecki, 2005) has criticised broad singular contextual factors in relation to performance measures. Therefore, in order to avoid this, this study provides empirical evidences by bringing together different contextual factors in order to build a unifying framework of clearly defined contextual factors and establish their impact on performance measures.

Fourthly, this study used multiple methodologies: with regard to statistical techniques, the study employs descriptive analysis, sample t-test, independent t-test, One Way ANOVA, factor analysis, correlations, and regression analysis. A combination of use these techniques are rarely found in the existing literature especially in the developing economies. While data collection techniques, this study has utilized triangulation approach by combining the questionnaire survey, unstructured interviews, focus groups, interviews and archival methods, for an in-depth investigation of this topic at the top and middle managerial levels( i.g. Chief Executive Officer, Branch Manager, and Senior Manager). This combination of data collection provides an analytical comprehensive insight and gives a better



explanation of the research problem, which is the main driver for choosing the appropriate research methods rather than concentrating on scoring epistemological points (Dawson, 1994; Burns, 2000).

Finally, this study is a pioneering attempt in examining in deep the case of performance measures from contextual side. As there have not been previous studies conducted in Libyan banks regarding performance measurement systems. So, the study assessed the growing importance of the banking sector in Libya as it is being the lifeblood of the Libyan service industries, the banking sector in Libya has the potential to contribute greatly to the process of economic diversification. If allowed to operate in a deregulated and competitive environment, Libyan banks will have to adopt effective strategies to satisfy their customers. Therefore, the current study provide a need contribution which will benefit academics and practitioners (managers and investors). In addition, non-bank managers as well as managers of banks in other countries may benefit from the findings of this study, especially in organizations where performance measurement systems is a strategic objective. The results of the study could be used as a benchmark by which other services organizations or other banks may compare with their use of performance measures.

#### **10.4 Scope and limitations**

Like any research study, this research has some limitations, such as:

- The sample of this study was limited to the banking sector in Libya. The results of the study, therefore, may not be generalisable to other sectors, which are different in many aspects such as the nature of products, and consumer needs. For example, the results may be irrelevant to services organisations such as that working in the communication and education sectors, or health sector.
- This study also limited the investigation to Libyan banks, therefore, foreign-banks in Libya were not surveyed. In addition, another constraint of the current study is the organisational size, which was determined by only the small and large sized banks, thus, results of this research might not be applicable to those of medium sized banks.
- The normal limitations associated with the data collection methods in this research were questionnaire and semi-structured interviews that represent the most common forms of empirical research in management accounting, which is in agreement with Shields (1997) and Abernethy et al. (1999). Both methods were used in this study, the mailed questionnaire provides a cost-effective method of collecting a large



quantity of data that avoids interviewer bias (Roberts, 1999). However, it has its own weaknesses such as the lack of the ability to clarify to respondents the interpretive difficulties with the design of the questionnaire (e.g. sophisticated terms).

- Although, the low adjusted R<sup>2</sup> for some regression models suggests that additional explanatory variables could be added to these models to improve their explanation of performance measures' variation. But the study do not capability identifying and including all the contingent factors that may influence performance measurements in Libyan banks (e.g. culture, management style, nature of banking services), for cost and time reasons.
- This study as cross-sectional survey research, so, the common limitation is for collected data at a single point in time, should be taken into consideration. A longitudinal study may support in understanding how performance measures use develop within organisations and how some variables might affect the use of these measures.

Notwithstanding these limitations, this is the first exploratory study to investigate the use of financial and non financial measures and factors that influence these measures in Libyan banks. Therefore, it provides evidence of the state of financial and non financial performance measures in Libyan banks, and highlights the influence of some contingent variables on these measures. The study is a starting point for further investigations and analysis of performance measurements in Libya.

### **10.5 Recommendations for Future Research**

The directions for future research of this study mainly come from the limitations of this study. The present study is the first attempt to investigate the use of financial and non financial measures in banking sector in Libya and to confirm a formal theory based on this phenomenon. This study used a contingency theory methodology and the mixed method. The study developed its substantive objectives and the cross analysis produced the findings. These findings form the basis for future research. Libyan banks' managements could take the finding of the study as a guide for developing an integrated performance measurement system if they wish to develop banks' performance in the Libyan environment. Moreover, during the development of this theory many possibilities for future research were revealed including the following:



- These directions concern how other variables may be relevant to the model. Additional research is needed to figure out whether there are some additional intervening and/or moderating variables that might affect the relationship between the contingent variables and the use of performance measures. For example, in this study, the relationships between the previously mentioned contingent factors and performance measures were investigated with the exclusion of the culture variable. This factor was excluded from the study of the contingent factors since it is an intra-country study and it was assumed that this excluded factor is country specific and remains relatively constant over time, which is consistent with other previous studies such as Hassabelnaby et al. (2003). However, it might be fruitful to take this factor into consideration in future researches as the culture of the same society might change over a long period of time.
- This study used mainly large-scale survey that emerged from analysing the sample by comparing the similarities and differences are considered as the main findings of this research study. Future research as longitudinal research is needed in order to determine whether the time has an influence over the magnitude of contingent variables that affect the use of performance measures.
- Some differences in the findings between different banks (commercial and specialised banks) may become similarities and not appear as differences if more studies are conducted. Therefore, more studies need to be conducted.
- The use of financial and non financial measures has not been researched in other parts of the Libyan sectors. Specifically, there is a need for future research to provide a broad overview of the use of financial and non financial measures in service sector and/or each of the other Libyan economic sectors. The findings of those studies would help to describe the state of the use of financial and non financial performance measures in these sectors and provide an opportunity for comparing the findings and determine the similarities and differences in the use of financial and non financial performance measures between these sectors in Libya.
- The present study was conducted when Libya was entering a transitional period as a result of the applicant of Libya to join the WTO, the process of privatisation, the ending of the US and UN sanctions, implementation of the National Payment System and other economic changes. Therefore, there is a need for future work to study the state of the use of financial and non financial performance measures in Libya after



passing through this stage of development to find if there are any further changes. In a developing country such as Libya, it is appropriated to study the privatised banks before and after privatisation, as the results of privatisation programs are still mixed.

- Further research is also recommended to target employees level to be respondent, in order to trace differences in perceptions for different levels of staff of the same banks, in addition, do these differences affect the use of performance measures.
- This exploratory study was conducted in Libyan banks and a similar study could be undertaken to examine this phenomenon in other countries of the Arab world such as the CFC, this would also enable a comparison to be made, which may help to determine whether or not there are any findings specifically related to the Libyan environment and also, whether or not there are any cultural, economic and political factors influencing the use of financial and non financial performance measures.

#### 10.6 Conclusion

The main purpose for conducting this research was the gap in performance measurement systems literature in developing countries as in the case of Libya. performance measurement systems and the contingency approach literature were mainly carried out in developed countries and carried out by western researchers. Developing countries are engaged in development programs, for instance the privatisation programme in Libya, which is a reason as such to investigate the effect these programs have on management practices.

In this regard, Shoib and Jones (2003) indicate that more research is needed in the developing countries because of today's increasingly complex and flourishing of the economic globalization. They added that it would seem important to recognize diversity and promote learning both in and between developed and developing contexts. Thus, it was suggested that studies in this part of the world need to be conducted and further research needs to be undertaken in these emerging and developing nations.

The performance measurement system as a strategic tool is very important which allows firms to achieve important objectives (e. g. the need to sustain an organisation's capability to create value within an increasingly competitive marketplace). Thus, the contribution of this research to performance measurement systems literature is twofold; firstly, it provides evidence about the current



application of performance measures in the small and large sized banks in Libya. Secondly, it determines the factors that might affect the use of these performance measures.

Through a series of qualitative and quantitative studies in the Libyan banking industry post the openness in Libyan environment that took place since 1990s, this study shows that contextual factors play a key role in the choice of performance measurement systems.

Specifically, three techniques are presented to support this argument. The first technique uses several classifications to the sample of banks used within study (the type of orientated strategy, type of ownership, type of business, size of bank) to identify the particularities / characteristics of the Libyan banks to make some predictions about the type and application of performance measures utilised by these banks. Results from this research show that bank managers identified their banks strategy as prospector, defender or analysers, and they classified their banks ownership as owned-state and private, also they categorized banks type of business as commercial and specialised, finally they labelled banks size as small and large. The outcome of this part of research shows that financial measures are still heavily adopted as the main types which are used for performance measurement purposes and paying a little attention to the tendency to use non financial measures (customer and learning and growth) from prospector, commercial, private and large banks to use measures to evaluate performance and multiple purposes. In addition, this part of research indicates that there are significant differences in the use of performance measures between some banks in each classification, as there is a significant difference between prospector and defender banks regarding the use of financial and non financial measures, also commercial and specialised banks are significant difference in choice and use performance measures, and the same among private and state owned can be noted

The findings of this study reveal that the majority of the Libyan banks are applying some levels of non financial performance measures with the financial measures. Although, it is not likely to differentiate from this study whether these non financial performance measures are a part of an established performance measurement system used in the Libyan banks, at least the findings show the importance of the use of these measures for the banking sector, which help in the adaptability of the bank to different internal and external factors. Libyan banks use a complementary mix of



different financial and non financial control systems. In addition, Libyan banks must adapt their control system by empowering workers and linking compensation rewards to quality results. Subject to the limitations of the study, this study found evidence to support the contingent nature of the performance measurement literature. As such, it contributes to that literature and provides an indication of how the literature might develop.

All the contingent variables selected, except organisational structure “centralisation” and competition, in this study; namely, strategy, technology, total quality management, and environmental uncertainty proved to be significant with, at least two out of five, the use of performance measures in large sized banks. All contingent variables, except organisational structure “centralisation and environmental uncertainty, namely strategy, competition technology, total quality management proved significant for the use of performance measures in small sized banks. However, only community measures have not been affected by any of the contingent variables in small and large banks. Organisational size, as the intervening variable in this study, has a major influence on the results between small and large sized banks for competition and environmental uncertainty, therefore, size does matter in this context.

In addition, this research, as a contingency-based piece of work, adds valid empirical evidence of the use of the contingency approach as a theoretical framework in performance measurement systems studies. A thorough review of management control systems and contingency theory literature was undertaken. Fisher (1998) states that contingency theory supposes that the design and use of control systems is dependent on the context of the organisational setting in which these systems operate. He also adds that if a company is to achieve a better match between its control system and the contingent factors, better organisational performance would be achieved. ‘A contingent variable is relevant to the degree that businesses that differ on that variable also exhibit major differences in how control attributes or actions are associated with performance (Fisher, 1998). He also stresses the existence of many contingent variables to the extent it is very difficult for a single study to take them all into account; however, he states that some contingency variables will dominate other contingency variables. In the same vein, Donaldson (2000) states that contingency theory of organisations holds that the organisational



characteristics need to fit the level of the contingency variables of the organisation for that organisation to have high performance.

This research constitutes one of the first studies to offer empirical evidence on the impact of this number of contingent variables on different performance measures all together in one piece of work on developing countries, in particular, Libya. After a thorough review of the broad performance measurement systems literature, it was revealed that some variables are of paramount importance to any management control systems research. The specific contingent factors selected in this study were strategy, centralisation, competition, technology, total quality management, environmental uncertainty and organisational size. The identification of these contextual variables potentially implicated in the design of management control systems, which was addressed in many contingency-based studies. Chenhall (2003) stated, 'in considering management control systems research since 1980, it is apparent that key variables, such as environment, technology, structure, management style and size, have been confirmed as descriptors of fundamental, generic elements of context'. He also added that recent research (e. g. Langfield-Smith, 1997) has considered the relevance of additional contextual variables to the design and use of management control systems, such as the role of strategy that was addressed in the most important new stream of literature.

This research applied the triangulation concept and provided further evidence that using both quantitative and qualitative methods in a single piece of research as complementary approaches. The survey was distributed to 345 managers of small and large banks in Libya achieving a 40.7% acceptable response rate. This was followed by 18 semi-structured interviews, which provided further evidence that support the confidence in the results of this research. Triangulation can be seen to reduce personal and methodological biases, which is in line with Decrop (1999), who states that the use of multiple methods might provide a means of not only achieving the objectives of generalisability and limiting interview bias but also of enhancing the meaningfulness of the measures to those completing the survey. Abernethy et al. (1999) point out that triangulation of research methods has much to offer as it helps in minimizing the bias of using one method solely. Peters (2002) states that the use of complementary forms of methodological approaches, such as surveys and semi-structured interviews, could be balance the limitations and the biasness of using a single method. Bryman (1984) suggests that all research methods have costs and



benefits; therefore, a researcher generally finds it best to use some combination or mixture of methods. For example, semi-structured interviews provide a closer involvement of researchers that yield richer and more complete data. However, this closer involvement of the researchers might cause a level of personal bias concerning the interpretation of interviewees' opinions and inferences. He points out that triangulation implies that a better overall view of reality is achieved when a social survey is linked to qualitative methods such as semi-structured interviews. Triangulation enables the researcher to check the possible drawbacks of a particular method in order to discern whether any inherent bias is present.

This study addressed the status of the use of performance measures in banks in Libya, in addition, it explored the contingent factors that might have an influence on the use of these performance measures; as such, the study contributes on two levels, namely, in application and in academic literature.

In application, this study allows Libyan banks to develop and evaluate their performance measurement systems by identifying the factors that lead to take into their consideration when designing and using their performance measurement systems. In addition, this study improves our understanding of current management accounting practices in Libya, which in turn, would be of interest to Libyan and foreign, whether current and/or potential, investors who consider starting/managing their businesses in the Libyan environment. Thus, this study can be of significance to managers of banks and Libyan and foreign investors.

This study contributes to the literature of performance measurement systems in that it helps researchers recognize whether differences in management accounting practices between developed and developing countries have been decreasing over the past few years. In addition, this study is the first to take all these key contingent factors, namely, strategies; centralisation, competition, total quality management, technology, environmental uncertainty and organisational size to identify their effect on the extended model of the balanced scorecard that includes five performance measures (financial, customer, internal business, innovation and learning and community measures).

In general, the results of this research lead to several recommendations. The research findings encourage Libyan banks to follow an adaptive performance measurement system, which assumes that banks should adapt continuously in reaction to changes in different environmental conditions (e. g. change in strategy). This could prevent



these systems from becoming obsolete and dysfunctional as external or internal conditions change. This recommendation is in line with Slagmulder (1997) who states that the design of management control systems must be sufficiently flexible so that new control mechanisms (either formal or informal) can be developed to adequately handle decisions when situations are encountered that cannot be dealt with by the existing formal management control systems'. Moreover, Miles and Snow (1978) state that organisations must constantly change and refine their systems by which they accomplish their purposes-rearranging their structure of roles and relationships and their decision making and control processes. And for these banks to do so, they can benefit from similar practices developed by Anglo-American firms. The final recommendation emerged from the interviews. Participants claimed that to help the banks working in the Libyan environment to utilise management control systems, some governmental actions are required. They gave examples such as enhancing the consistency and improving transparency in the application of reforms and regulations, strengthening and enforcing of the laws in order to put in the corruption in the country and maintaining certain policies to encourage and attract local and foreign investment.



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## Appendix A





Faculty of Business & Law

## Dear Participant

The aim of my study is to examine what current performance measures are used in Libyan banking sector and what contingency factors affect the use of these measures.

The aim of this survey is to find out the views and experiences of bank directors on what and how performance measures are used and the degree of importance of these measures in achieving in successful targets of firms and what contingency factors are influencing the use of these measures.

Please take the time to complete the survey, as the results will be analyzed for completion of my study.

The information you give in this questionnaire is completely confidential. You do not need to identify yourself, if you choose not to. The information is being collected purely for statistical purposes and the completed questionnaire will only be analyzed by the researcher only.

The questionnaire can be completed electronically and manually, completed by hand and handed back to me.

For each question, please tick the answer that most meets your own view or experience. There is space at the end of each section to give any comments or to expand on any of your answers.

If you would like to discuss any aspect of this survey please do not hesitate to contact me.

Thank you in advance for your time and assistance.

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## **Section one: General information**

**1.1** In this part of the questionnaire, you are asked to provide general information about your bank. Please answer by ticking the appropriate option. *(Please answer all the questions).*

### **1.1- General Background about Responding Banks.**

#### **1.1.1 What type of business does your bank undertake?**

- ☐ Commercial ☐ Specialized

#### **1.1.2 What kind of ownership is your bank?**

- ☐ Public ownership ☐ private ownership

#### **1.1.3 What is the total of assets in your bank? ( Libyan Dinar (LD) Million)**

- ☐ Less than 100 ☐ Between 100-500 ☐ More than 500

#### **1.1.4 Please tick one of the following statements that best describes the business strategy oriented by bank's management**

- ☐ The strategy of the bank is always searching for market opportunities, in addition, the bank is regularly experiments with potential responses to emerging environmental trends.
- ☐ The strategy of the bank operates two types of product-market domains, one relatively stable, the other changing, at the same time. In its stable areas, the bank operates routinely and efficiently...in its turbulent areas, (bank) watches its competitors closely for new ideas, and then it rapidly adopts those which appear to be the most promising.
- ☐ The strategy of the bank operates in narrow product-market domains... and does not tend to search for opportunities broad these domains for opportunity.

**1.2** In this part of the questionnaire, you are asked to provide general information about yourself. Please answer by ticking the appropriate option. *(Please answer all the questions).*

### **1.2- General Background about the respondent.**

#### **1.2.1 What is your position in this bank?**

- ☐ Senior Manager ☐ Branch Manager ☐ Chief Executive Officer ☐ Other (please specify) .....

#### **1.2.2 What is the level of your highest qualification?**

- ☐ Under University degree ☐ University graduate ☐ Postgraduate ☐ Other (please specify) .....

#### **1.2.3 In which field of study is your degree?**

- ☐ Accounting ☐ Business administration ☐ Finance ☐ Other, (please specify) .....

#### **1.2.4 Work experience, how long have you been employed in the bank?**

- ☐ Less and equal to 5 years ☐ 6-10 years ☐ 11-15 years ☐ 16-20 years ☐ more than 20years.



**1.3-** In this part of the questionnaire, you are asked to provide specific information about your bank's performance measurement systems and its effectiveness. Please answer by ticking the appropriate option. (Please answer all the questions).

**1.3.1** Please indicate the extent of use of the following performance measurement systems of your banks? Please mark one response for each line.

Performance measurement systems	Not at all	To no real extent	Neither to any real nor to some extent	To some extent	To a great extent
A. Balanced Scorecard					
B. Economic value added (EVA).					
C. Business Excellence model (e.g. EFQM)					
D. A set of Key Performance Indicators (KPIs)					
E. Our own PM system not based on any of the above					
F. Other – please specify:					

**1.3.2** My bank's Performance Measurement system (e.g. Balanced Scorecard, set of KPIs, etc.) has the following characteristics...etc)

Statements	Strongly disagree	disagree	Neutral	agree	Strongly agree
A. Is linked to our business strategy					
B. Uses a balanced set of performance measures (e.g. financial, customers, employees, operations, etc.)					
C. Is integrated with our evaluation processes					
D. Is integrated with our reward system					
E. Other – please specify:					

**1.3.3** My bank uses its Performance Measurement system to...

Statements	Strongly disagree	disagree	Neutral	agree	Strongly agree
A. Measure business results					
B. Manage strategy implementation					
C. Assess the validity of the business strategy					
D. Manage operations processes					
E. Inform decision making					
F. Conduct internal benchmarks					
G. Reward managers' contribution to business performance					
H. Other – please specify:					

**1.3.4** The following statement help me to develop a greater understanding of the satisfaction of the current performance measurement system. On the scale below, please circle the appropriate number to indicate overall satisfaction with the performance measurement system of your bank.

Very dissatisfied	dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied



1.3.5 For each of the indicators listed below, please indicate how important you perceive each options in determining the success of your bank as a whole. Using the scale below, please circle the most appropriate responses respectively for importance for each item.	Very unimportant	unimportant	Neither important nor unimportant	important	Very important
A. Cash flow					
B. Market share					
C. Training and development					
D. Return on investment					
E. Cost reduction					
F. Market development					

### Section two: Types of Performance measures

In this section of the questionnaire, you are asked to express your agreement concerning the types of performance measurements that are used to measure, evaluate, and reward bank/branch performance of your bank. Please answer them by circling the corresponding options that represents your agreement. *(Please answer all questions)*

Statements	Strongly disagree	disagree	Neutral	agree	Strongly agree
2.1 Bank's management are convinced that financial figures reflect performance as the best basis.					
2.2 From the perspective of bank's management, achieving financial targets is a perfect reflection of whether branches are successful in their business or not.					
2.3 Branch promotion depends heavily on its ability to achieve the financial operation targets (e.g. targeted cost).					
2.4 Financial indicators (e.g. return on investment, return on assets, budgeting, branch operating cost, branch net profit ... etc) are the main performance measures in the bank.					
2.5 From the bank's management perspective, none achieving the planned financial targets reflects poor performance.					
2.6 From the bank's management perspective, the financial reporting is most importance source for all information they need.					
2.7 Bank policy takes into account customer feedback towards bank's services.					
2.8 From the bank's management perspective, achieving good performance is accompanied by no customer's complaints					
2.9 Customer satisfaction has a positive impact on how performance is rated by bank's management.					
2.10 Bank branch promotion prospects depend on its ability to meet customer expectations.					
2.11 Bank's management is very keen about gaining customers' loyalty.					
2.12 Bank policy takes into account the latest technology in banking industry.					
2.13 Bank branch promotion prospects depend partially on its ability to create new idea regarding its services.					



Statements	Strongly disagree	disagree	Neutral	agree	Strongly agree
2.14 From the bank's management perspective, bank branches must make efforts to monitor our competitors to be ahead of them.					
2.15 From the bank's management perspective, failure in identifying new markets reflects poor performance.					
2.16 Bank branch collects data about competitors' movements/activities to compare them with its activities.					
2.17 Training courses are regular program for all employees to develop and maintain their capabilities.					
2.18 Bank management updates its database to customers' needs, due to the bank would be able to meet any change quickly and provide a high quality service (reliability and timely responsiveness).					
2.19 The bank's management paid more attention to employee satisfaction.					
2.20 Bank policy encourages the on-time delivery for our services, and it acutely operates to manage the time taken to complete their transactions.					
2.21 Number of services/transactions which are offered and their acceptance rate have impact on how performance is evaluated.					
2.22 The bank's management is very keen about level of quality services rather than the revenue figures.					
2.23 The bank policy takes into account employee turnover rate					
2.24 The bank policy encourages teamwork as the best way to coordinate between employees.					
2.25 From the bank's management perspective, bank branches must make efforts to improve their employee productivity, creativeness, and effectiveness					
2.26 From the bank management perspective, achieving outstanding performance is associated with bank's public responsibility toward the society.					
2.27 Public image and community involvement issues are new concept that is considered a waste of money and time.					
2.28 Working in line with the public commitments has no impact on how performance is being measured.					
2.29 From the bank management perspective, failure to meet issues of community commitments is not important, as long as its financial performance improves.					
2.30 The bank management follows the community regulations because it believes they are important for both society and the bank.					
2.31 Please express your opinion about any additional measures that might be missing in this section .....					



### **Section Three: The Usage of Performance Measures**

In this section of the questionnaire, you are asked to express your perception about the bank's usages of performance measures that used to evaluate, and reward your performance. Answer by including the option that represents your opinion. *(Please answer all questions).*

<b>3.1 Please indicate the extent to which various performance measures categories are important drivers of bank's management long-term organisational success.</b>	very unimportant	unimportant	Neither	important	very important
A. Financial indicators (e.g. return on assets , return on investment, budgeting, total net cash flow, branch operating cost, branch net profit.. etc )					
B. Customer indicators (e.g. customer satisfaction, customer retention, customer acquisition, customer complaints, Number of customers lost, etc)					
C. Learning and innovation indicators (e.g. new product development success, development cycle time, employees satisfaction etc)					
D. Internal Business indicators (e.g. Rate of incidence of services defects, quality awards , Turnover, Number of hours-training, adjournment, learning, workforce capabilities etc)					
E. Community indicators (e.g. public image, community involvement, etc)					

<b>3.2 Please indicate the extent to which bank's management use each of the seven value driver categories for evaluating managerial performance.</b>	Never used	Not really used	Neutral	often used	Frequently used
A. Financial indicators.					
B. Customer indicators.					
C. Learning and innovation indicators.					
D. Internal Business indicators.					
E. Community indicators.					

<b>3.3 Please indicate the extent to which bank's management use each of the seven value driver categories for identifying problems and improvement opportunities and developing action plans.</b>	Never used	Not really used	Neutral	often used	Frequently used
A. Financial indicators.					
B. Customer indicators.					
C. Learning and innovation indicators.					
D. Internal Business indicators.					
E. Community indicators.					

<b>3.4 Please indicate the extent to which bank's management use each of the seven value driver categories for Reward System.</b>	never used	Not really used	Neutral	often used	Frequently used
A. Financial indicators.					
B. Customer indicators.					
C. Learning and innovation indicators.					
D. Internal Business indicators.					
E. Community indicators.					



3.5 Please rate how well your bank measures performance within each category.	Extremely poor quality	poor quality	Neither poor nor good quality	good quality	Extremely high quality
A. Financial indicators.					
B. Customer indicators.					
C. Learning and innovation indicators.					
D. Internal Business indicators.					
E. Community indicators.					

#### **Section Four: Factors Affecting Performance Measures'**

In this section of the questionnaire, you are asked to express your view about selected factors that may have affected the use of performance measures in your bank. Answer them by indicating the option that represents your attitude. *(Please answer all questions).*

Statements	Strongly disagree	disagree	Neither agree nor disagree	agree	Strongly agree
4.1 This bank branch faces intensive competition from outside banks for business					
4.2 Over approximately the past 5 years the level of competition for our services has significantly increased					
4.3 Services' price competition within this industry is extremely intense					
4.4 The level of competition in the market for the major services of our bank is extremely intense					
4.5 New service introduction decisions are made only at the highest management level.					
4.6 Apart from minor investment, capital budgeting decision are usually made only at the top management level					
4.7 Decision to attempt penetration into new markets generally are made only by top management					
4.8 Decisions on major changes to (including new introduction of ) banking services are made only at the top management					
4.9 Pricing policies are set only by top management					
4.10 Employees are rewarded for quality improvement					
4.11 Experiments to improve the quality of services are frequently conducted					
4.12 Quality benchmarking with other banks is tracked					
4.13 Employee teams are functioning and have been effective.					
4.14 Total quality management, whereby most business functions are involved in process of continuous quality improvement, is extremely high priority					
4.15 Bank's strategies is critical factor that affect the use of performance measures					
4.16 Short and long term strategies influence the use of performance measures					



Statements	Strongly disagree	disagree	Neither agree nor disagree	agree	Strongly agree
4.17 Strategies have a great effect on the future financial plan of the bank.					
4.18 Strategies have a great effect on the non financial measures because they draw the orientation of the bank towards some major stakeholders such as customer					
4.19 Strategies do not have that great effect on encouraging employees' creativity and innovation.					
4.20 The banking industry is influenced by the changes in the level of progress in IT services.					
4.21 It is extremely difficult to predict another bank competitive move.					
4.22 There is an increasing change in the customers' demands and attitude regarding banking service.					
4.23 Banking attributes and methods of service are constantly adapting to change and therefore unpredictable.					
4.24 It is intricate to predict and keep up with changes in the governmental (The Central Bank of Libya) regulations.					
4.25 Modern technology prevailed in banking industry is a critical factor that affects the use of performance measures in different banks					
4.26 The bank updates its technology regularly, although it requests high cost to obtain.					
4.27 Bank's management believe that technology attained is key factor that affects the use of performance measures.					
4.28 Indeed, technology has important effect on non financial measures, particularly issues like customer					

Please add any further information that you believe is important for this study which the researcher did not mention in this questionnaire?

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**Thank you very much for your cooperation**