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**The Influence of Business
Environment on the Effectiveness
of Management Accounting
Practices: Evidence from Libyan
Companies**

Muftah S. Abugalia

**A Thesis Submitted to the University of Huddersfield
in Partial Fulfilment of the Requirements for the
Degree of Doctor of Philosophy**

**The University of Huddersfield
University of Huddersfield Business School**

2011

Abstract

Although management accounting research based on contingency theory has a relatively long tradition, many recent studies have called for additional work in order to increase the understanding of possible contingency factors that explain the adoption of management accounting practices (MAPs). This, in addition to a general lack of knowledge of MAPs, especially in developing countries, is the motivation for this research study. The main focus of this research is to investigate the state of MAPs within Libyan companies and identify and explain the relationships between these MAPs and contingent factors. To capture these relationships in sufficient depth, a theoretical contingency model which includes 14 variables was developed based on an extensive review of the relevant literature and the examination of various possible forms and levels of fit. This model adopts both congruency and contingency approaches of fit and considers mediated relationships between contingent variables, MAPs and organisational performance. Primary data were collected by means of a survey questionnaire from 123 companies and face-to-face interviews with senior managers in 10 of these companies.

The results of this study show that the adoption rates of most MAPs in Libyan companies are lower than those found in other countries as reported in the literature (e.g. USA, UK, Australia and India). MAPs in these Libyan companies also seem to serve a narrow range of purposes. In addition, budgeting practices are more popular and take precedence in the respondent companies. The testing of hypothesised direct and mediated relationships using regression analysis indicates that there is no single variable that has a significant effect on all three types of MAP (i.e. cost, budgets and measurement performance). Nine of the 14 contingent variables are statistically links to the type of MAP; seven of these (i.e. build strategy, differentiation strategy, prospector strategy, formalisation, product diversity, size and ownership type) to budgeting and performance measurement practices, and the other two (i.e. formalisation and ownership type) to cost and budgeting practices. Of significance also is the result that MAPs play a mediating role between many contingent variables and organisational performance. While most interviewees acknowledged the importance of contingent variables in relation to MAPs, they mentioned several reasons for not having MAPs that fully encompass the business environment. The reasons include lack of knowledge about MAPs, shortage of financial resources, the company being newly established, lack of top management support, absence of the culture of using MAPs and fear of change.

Finally, this study represents a most comprehensive survey and explanation of MAPs in a developing country, namely Libya, which is an emerging economy. It contributes to enriching our understanding of how MAPs can be adopted more effectively and efficiently from a contingency perspective, through identifying the impact of this relationship on organisation effectiveness in developing countries, and to bridging the gap in MAPs literature. However, this study not only contributes to the inspiration and helps to identify whether there are differences in the relationship between contingent factors and MAPs between industrialised and developing countries, but also gives a more in-depth understanding of these relationships for discerning the individual impacts of the various variables of contingent factors on various MAPs (i.e. cost, budgets and measurement performance).

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

“أَنْزَلَ مِنَ السَّمَاءِ مَاءً فَسَالَتْ أَوْدِيَهُمْ بِقَدَرِهَا فَاحْتَمَلَ السَّيْلُ زَبَدًا رَابِيًا وَمِمَّا يُوقِدُونَ عَلَيْهِ فِي النَّارِ ابْتِغَاءَ حُلْيَةٍ أَوْ مَتَاعٍ زَبَدٌ مِثْلَهُ ۗ كَذَلِكَ يَضْرِبُ اللَّهُ الْحَقَّ وَالْبَاطِلَ فَأَمَّا الزَّبَدُ فَيَذْهَبُ جُفَاءً ۗ وَأَمَّا مَا يَنْفَعُ النَّاسَ فَيَمْكُثُ فِي الْأَرْضِ ۗ كَذَلِكَ يَضْرِبُ اللَّهُ الْأَمْثَالَ”

صدق الله العظيم – سورة الرعد – آية 16

In the name of Allah, the Beneficent, the Merciful

“He sendeth down water from the sky, so that valleys flow according to their measure, and the flood beareth (on its surface) swelling foam - from that which they smelt in the fire in order to make ornaments and tools riseth a foam like unto it - thus Allah coineth (the similitude of) the true and the false. Then, as for the foam, it passeth away as scum upon the banks, while, as for that which is of use to mankind, it remaineth in the earth. Thus Allah coineth the similitudes”

The Holy Quran, Surah Al-Rad, Verse 16).

Dedication

I wish to dedicate this study to:

My beloved mother and father;

My wonderful brothers:

Fraj

Khaled

And Mohamed

My dearest spouse Njah and

My beautiful kids:

Abduelmalek

Muhammad

Aisha

And Salem

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Chapter One

Introduction and Background

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1.1 Introduction

The importance of management accounting to organisations has traditionally been expressed in terms of its role in providing information for planning, controlling, evaluating performance, and making decisions (Drury, 2008; Scapens, 1991). More recently, its strategic role has been emphasised. For example Cassia, Paleari, and Redondi (2005) see management accounting as “*a set of tools involving the activities of information collection, classification and computing in order to help the strategic decision making process*” (p. 375). It has been asserted that now, more than ever, the need for business organisations to be more responsive, more flexible and more adaptable is of overriding importance if they are to remain competitive (Auzair & Langfield-Smith, 2005). All organisations are concerned with using accounting information to assist managers in making rational decisions in order to attain organisational aspirations. Thus, management accounting has become a vital element of an organisation, aiding in “*helping the managers of complex, hierarchical organizations to plan and control their operations*” (Kaplan & Atkinson, 1998, p. 10) in order to achieve the organisation’s objectives. Hence, this research aims to examine the factors that can be expected to impact on management accounting practices (MAPs) in the Libyan context.

Although Bromwich and Bhimani (1989) pointed out that organisations find it difficult to change their accounting systems in response to developments in their environment (i.e. technology and competition), Zimmerman (2000) argues that since the 1970s, two key things have impacted and changed organisations and management accounting: (1) factory mechanisation and computer/information technology and (2) worldwide competition. In addition, contingency theory has extended the management setting and control by illustrating the contingent variables that impact on organisational design and accounting and non-accounting information systems (Gordon & Miller, 1976).

The contingency theory of management accounting is predicated upon the idea that there is no universally relevant management accounting system (MAS) that

equally applies to all enterprises in all circumstances. It suggests that when the specific circumstances of an enterprise change, MAS should acclimatise if they are to remain effective. In other words, there is no perfect accounting system, but for systems to be effective, they need to accommodate a company's specific circumstances (Clarke, Hill, & Stevens, 1999; Gerdin & Greve, 2004; Haldma & Laats, 2002; Jones, 1985; Otley, 1980; Reid & Smith, 2000). That means there is no perfect design for MAS but the best design depends on the circumstances in which the company works. When the compatibility (fit) between MAS and the business environment improves the company's performance should also improve; MAS designers should take care of the environmental effects on their system. Kreitner (2001) defined contingency approach as an effort to identify through research which practices and systems fit best in specific situations.

Management accounting research using a contingency approach has sought to relate a range of contextual factors, such as *perceived environmental uncertainty (PEU)* (Brownell, 1985; Jones, 1985), *technology* (Abernethy, Lillis, Brownell, & Carter, 2001; Baines & Langfield-Smith, 2003; Jones, 1985; Waterhouse & Tiessen, 1978) and *strategy* (Abdel-Kader & Luther, 2008; Baines & Langfield-Smith, 2003; Chong & Chong, 1997) with the design of MAS. Recently, contingency theory has been applied to explain the factors that are expected to impact on the adoption of different levels of management accounting sophistication techniques (Abdel-Kader & Luther, 2008; Gerdin, 2005; Tillema, 2005). In this sense, Tillema (2005, p.102) claims that "the appropriateness of using sophisticated techniques may depend on the circumstances in which these techniques are being used [and this]....gives rise to the need to adopt a contingency theory perspective".

The theme of the influence of the business environment on MAS has been the central interest of several studies for the past four decades. These studies attempt to find the relationship between management accounting and an organisation's business environment. Many variables which are considered to be of paramount importance in influencing or should be permitted to influence the design of MAS

have been presented in the literature (Chenhall & Morris, 1986; Jones, 1985; Otley, 1980). These variables have been broadly classified into (a) external factors, which occur to a large extent independently of actions taken by the business enterprise such as *environmental uncertainty* (Abdel-Kader & Luther, 2008; Chong & Chong, 1997; Waterhouse & Tiessen, 1978), and *market competition* (Jones, 1985; Libby & Waterhouse, 1996; Mia & Clarke, 1999), (b) a larger number of inter-organisational factors, such as *organisational size* (Abdel-Kader & Luther, 2008; Brownell, 1985; Hoque & James, 2000), *organisational strategy* (Abdel-Kader & Luther, 2008; Baines & Langfield-Smith, 2003; Chong & Chong, 1997) and *organisational structure* (Gordon & Miller, 1976; Reid & Smith, 2000; Soobaroyen & Poorundersing, 2008). However, the multiplicity of contingency-based management control system (MCS) research does not seem to have led to more consistent and coherent findings. Chapman (1997, p. 189) claims that there is still a lack of an overall contingency framework, “...*leaving no obvious starting point for an explanation of an increasing body of often contradictory results*”. Furthermore, Chenhall (2003) argued that clear specification of the environmental dimensions that are of interest to the researcher is needed, as different theories are required to consider the effects of different dimensions.

This study seeks to add to the limited body of knowledge of management accounting in North African countries, particularly Libya as an emerging economy. It involves a comprehensive survey and explanation of MAPs in Libya to increase the understanding of current use of MAPs as well as to explore the relationships between MAPs and contingent factors that might influence organizational performance.

1.2 Background of the Research Setting: Libya

Libya is a developing country located in North Africa, which lies on the south coast of the Mediterranean Sea. The country has a relatively small population of around 6 million residents occupying a (relatively), a very large area of about

1,760,000 square kilometres. Libya is the fourth largest country in Africa, seven times bigger than Great Britain and Northern Ireland. Libya is Africa's major oil producer and one of Europe's biggest North African oil suppliers.

For most of its history, the country has been subject to foreign control, the last of which was the Italian occupation (1911-1945) and British administration (1945-1951). In November 1949, the United Nations General Assembly passed a resolution stating that Libya should become independent before January 1, 1952. Consequently, on December 24, 1951, Libya was declared an independent monarchy and became the first country to achieve its independence through the United Nations. Wright (1969) described post-independence Libya as one of the poorest countries in the world, relying on agriculture as the main hope for its economic future. Agriculture then employed about 70% of the labour force, contributed about 30 % of the Gross Domestic Product (GDP) and provided raw materials for the industrial sector, exports and trade. The average income per person of the Libyan population stood then at the slim figure of 13.90 Libyan Dinars a year, or less than 40 US Dollars (Farley, 1971). The main sources of foreign currency were from aid and the rent for a number of military bases paid by the US and the UK (Anderson, 1986).

Since its independence, Libya has experienced several major economic and political changes. These changes are divided into three stages, as follows:

First Stage: 1950-1969

Independence was a great achievement for the Libyan people and ended a very long period of foreign domination. Nevertheless, a lot of challenges appeared after independence was gained. There were no adequate economic resources; a lack of education, the war damage had to be repaired, and so forth. However, Higgins' statement fairly represents the case at that time, but the discovery of oil in the late 1950s has made the situation entirely different and has affected the lives of the Libyan people. With regard to the political side, the wealthy Libya had become

more independent from the influence of foreigners and the government actually controlled the whole country and had eliminated the influence of the provincial administrations.

Furthermore, more ministries were established to deal with and direct the future wealth by establishing heavy industry and agriculture in order to attain diversification of production, self-sufficiency and export growth (Aгнаia, 1996). The Libyan economy grew rapidly as the country became richer, which attracted many international companies to operate in different sectors, specially the oil sector. The country's economy has become dependent on foreign oil companies predominantly from the UK and the US (Bait El-Mal, Smith, & Taylor, 1973) and other international companies operating in different sectors such as banking, where four out of five bank branches belong to foreign banks (Buzied, 1998). In this period Libya was monarchy and the official name of the country was the "Kingdom of Libya" (Farley, 1971). The aid and close ties with the US and the UK during the monarchy had influenced and shaped the western political orientation of Libya. The Libyan economic system was mainly capitalist. Private ownership existed with minimum governmental interference. On 1st of September 1969, military coup led by Muammar Al Gaddafi, proclaiming the country as the "Libyan Arab Republic".

Second Stage: 1969-1988

After the 1969 coup, the state took control of almost all economic domains. Measures were enacted to restrict the activities of foreigners in commerce and industry, new agreements were negotiated with the oil companies operating in Libya to provide greater Libyan participation, and some of them were eventually nationalised. In addition, the government issued a number of resolutions in the late 1970s illegalising private ownership of economic activities and nationalising all foreign capital operating in the Libyan market (Abusneina & Shamia, 1997; Anderson, 1986). The ownership of many private companies was changed in 1979 to become state-owned (Derwish, 1997). Bait-Elmal (1999) states that by the end

of 1981, with the exception of the agriculture sector, all private ownership in Libya was abolished, housing ownership was restricted to one house per family, business enterprises were replaced by government agencies.

Tulba and Fhaima (2004) argue that the Libyan economy had achieved high growth rates during the 1970s and suffered negative growth rates in the early 1980s. However, it is argued that most of the objectives of the development plans have not been achieved due to the domination of the state over economic activities that led to the misuse of economic resources, lower productivity levels, higher production costs, lower quality, weak control in the public sector and lower return on capital (Alqadhafi, 2002). Therefore, the state domination of the Libyan economy led to major economic crises that prompted the government to open the door to the private sector and start a policy of privatisation of a large number of state-owned companies (Bait-Elmal, 1999).

Third Stage: 1988-February 2011

Sharif (2000) reveals that since the late 1980s, a number of serious procedures, laws and resolutions have been taken, aiming to transform the Libyan economy from a centrally planned system to a more productive and flexible market-based economy by encouraging the private sector and fostering the process of participating in the economic activities in the Libyan market, reducing the role of the state, to be limited to some public activities such as health, education and security, and by privatising state-owned companies and prioritising projects that use domestic raw materials:

- Several pieces of legislation and laws were issued, such as: Act number 9 in the year 1992, Act number 198 in the year 2000, and Act number 107 in the year 2005, all of which sought to allow private investors to take part in economic activities;
- Simplifying business registration for local businesses, towards a more declarative process; opening more sectors to local and foreign investment,

moreover tax reduction policies and gave exemptions from paying taxes for several years;

- The Libyan Financial Market was established for the first time in 2005 under Act number 105. Other financial reform attempts also took place in order to enhance the financial service sector such as opening more local and foreign commercial banks and unification of the exchange rate;
- The elimination of food subsidies and the reduction of fuel subsidies;
- The privatisation of a number of state-owned companies, decline in the state support of those companies, represented by the imposition of equal foreign exchange rates, allowing foreign products to enter and penetrate the domestic market etc., trying to reform and re-orient the economy towards a more market-based system and to provide an opportunity for the private sector to contribute to the economy and overcome the difficulties that the economy had encountered (Report, 2006);
- In October 2004, Libya applied to be a member of the World Trade Organization (WTO). Realising the vital role of being a member of the WTO, the Libyan government has been an observer since that time and once it becomes a member Libya will be more open to the world, and the world will be more open to Libya. This two-way openness will reduce entry-exit barriers for international businesses and make business easier; and
- The Free Trade Zone was established according to the General People's Committee decision number 20 in the year 1999, aiming to fulfil a number of obligations, such as developing international and transit trade and export industries, examining laws, regulations and resolutions relating to local and foreign investments in the free zones, and providing all modern means of communication, transport and all services necessary for the running of businesses within the free zones. It was granted permission to

establish enterprises in the Free Trade Zone, and the profits thereof, enjoy the exemptions and privileges provided by the abovementioned law number 5 in the year 1997.

However, the Libyan government has not officially declared that Libya will formally adopt the capitalist system rather than the socialist system, which discourages most local and foreign investors, and some of these measures mentioned above remained theoretical procedures and were not applied. Thus, the government did not also succeed at this stage in reviving the national economy of Libya. In addition, Libya is ranked in thirteenth place among the most corrupt countries in the world in 2011 by Transparency International.

1.3 Management Accounting Practices in the Libyan Context

Research on accounting in developing countries has increased over the past two decades, possibly due to the increasingly globalised environment. However, most of the research has been related to financial accounting (FA) rather than management accounting (MA). A literature review of MA in less developed countries (LDCs) has recently been carried out by Hopper, Tsamenyi, Uddin, and Wickramasinghe (2009) in order to evaluate MA research in those countries and provide suggestions for its development. They reviewed the existing literature of MA research in LDCs published in several leading accounting journals (15 journals). They consulted 75 empirical papers from 29 countries in total, however none was about Libya. On the other hand, there have been a few doctoral dissertations carried out on MAS in the Libyan context (e.g. Alkizza, 2006; Leftesi, 2008).

1. Alkizza's Study (2006)

This study examines the change in MAPs used by Libyan companies following the alteration of the country's economy from a socialist centrally-controlled system to an open market-based system, using the contingency theory approach. The main question of this study is "*Have there been any changes in the*

management accounting practices used in Libyan companies as a response to the change that occurred in the business environment? And has this change, if there, had an impact on these companies' performance?" The study compares the range of MAPs used in two periods, before and after 1997. The data was collected for this purpose from a sample of 79 Libyan companies using a questionnaire survey, and analysed using different statistical methods. In addition, and in order to investigate the process of MA change at the organisational level, a case study technique is conducted and analysed in two Libyan companies.

The findings indicate that Libyan companies have experienced pressure from business environmental factors, such as new state regulations, competition, deterioration of financial performance and the need for more accounting information. In addition, the change in MAPs, in terms of the introduction of new systems and the change in the method of using existing systems, has been confirmed to have taken place in Libyan companies. The study also reports which discourages most local and foreign investors a significant increase in the range of MAPs employed in the surveyed Libyan companies as overall since 1997, as well as in each type of company. Furthermore, it suggests that change in the business environment had an impact on MAPs' change in the surveyed companies, improving organisational performance and changing the role of accountants in these companies.

The study examines the effect of the business environment, which was measured by looking at the combined impact of sixteen items on MAPs. However, it recommends that future studies expand the research by concentrating on particular MAPs related to different aspects, such as cost accounting, planning and control, performance evaluation and non-financial MAPs, in relation to particular change origins. In addition, the study reveals that more state-owned companies are being privatised and that the process of privatisation is expected to be completed in 2008; future studies should pay attention to the change in privatised companies by comparing MAPs used and the performance of these companies before and after privatisation

2. Leftesi's Study (2008)

This study aims to explore and understand the diffusion of Western MAPs in economic transition conditions, namely in Libya, in terms of the present and future state of MAPs in Libyan manufacturing companies, and the factors influencing their diffusion. The study designed framework includes the demand side, the supply side and the institutional environment in order to explain the innovation diffusion. It supposes that the economic changes that took place in the Libyan economy put immediate pressure on accounting practice to change to meet the demands of the new business environment. The model is designed to investigate and assess the factors that influence the development and change of MAPs in Libyan manufacturing companies. The study uses a questionnaire survey of 81 large and medium-sized Libyan manufacturing companies from different industrial sectors, supplemented by 10 interviews.

The findings indicate that most surveyed MAPs were adopted by Libyan manufacturing companies, but these adoption rates were lower than those that the process of privatisation is expected to be completed in 2008 usually reported in the MA literature. The study also reports that the environmental factors, which were uncertainty and market competition, appeared not to have an important effect on MAPs' diffusion, while the innovation factors (e.g. the availability of resources, the availability of training, top management support and company size) had a significant positive effect on the diffusion of MAPs in Libyan manufacturing companies.

Both Alkizza (2006) and Leftesi (2008) find that most traditional MAPs are used in Libyan companies, but they are still used relatively less than in other countries, even developing countries. They also report that Libyan companies have firstly placed more emphasis on budgets practices then on cost practices, while performance measures or evaluation have not been emphasised. In addition, similar to other developing countries, the use of advanced MAPs such as Activity-based costing (ABC), life cycle costing and balanced scorecard (BSC), is non-

existent or very low in Libya. Finally, their studies predict that some MAPs are likely to be considered for adoption in the future, such as budgeting systems for planning financial position and cash flows, product profitability analysis, cost-volume-profit/break-even analysis, target costing and life cycle costing.

1.4 Research Rationale and Motivation

The changes that took place in the last two decades in the Libyan economy affected business ownership and objectives, characteristics of a new Libyan business environment emerged. The characteristics of the new business environment are described as greater dynamism, uncertainty and continuous radical change. This new environment affects not only manufacturing companies, but also organisations in all other sectors. It influences both production processes and post-production activities as well as organisational structures, business strategies and managerial philosophies (Yazdifar, 2003). This also may have led to the development of MAPs in order to provide information relevant to this new business environment. To survive and succeed in this environment, it is necessary for Libyan companies to restructure and reconsider their management and MAPs. The companies should pay more attention to the demand and concerns of all other legitimate stakeholders.

As stated earlier, accounting practices are seen as a response to the requirements of changing environments, in particular economic and social factors. In this context, some suggest that there are some differences in MAPs between developed and developing countries. For example, Longden, Luther, and Bowler (2001) found that MAPs are not generally consistent and cannot be understood in isolation from political, cultural and economic issues. However, Kilani (1988) argues that accounting systems in Libya were not developed in response to the environment but have been affected by a number of factors, the most important of which are the foreign influence of incoming overseas companies and the return of Libyan academics who graduated from foreign universities. He also argues that until 1976, the accounting education system in Libya was British-orientated

because Libya was under UK administration from 1945 to 1951 and because of the close relationship between the two countries. Afterward, the arrival of US international companies after the discovery of oil reduced UK, and increased US, accounting, both in terms of accounting education and practice, until US Generally Accepted Accounting Principles (GAAP) were fully adopted (Mahmud, 1997). The focus in education on financial accounting seems to have resulted in neglecting management accounting (Mahmud, 1997); this has been exacerbated by the noticeable lack of in-depth management accounting research in Libya.

Contingency theory, proposing the concept of fit between organisational characteristics and contingency factors, is often used to explain the adoption of different MAPs in organisations. It has been used to identify the factors that have an impact on the effectiveness of an organisation's MAS, via an interaction between MAS, contingent factors and organisational performance. In the words of Otley (1980), the control sub-system/mechanism must "match or fit" the contingent factors affecting this particular organisation, to encourage appropriate/beneficial performance. Therefore, the concept of alignment in contingency theory implies that organisational performance could be improved throughout the fit between organisational contingencies and characteristics reflecting the organisational situation (Donaldson, 2001). In contrast, a lack of "congruence" between a (or a set of) contingent variable(s) and the control sub-system/mechanism will have negative consequences. Hence, the achievement of a fit, or a match, between the contextual factors (the contingency variables) and MAPs is central to contingency theory in the field of management accounting.

Although management accounting (MA) research based on contingency theory has a long tradition, it has been confirmed by a stream of recent calls for additional research in order to enhance the understanding of potential contingency factors which explain the adoption of MAPs (Chenhall, 2007; Gerdin, 2005; Gerdin & Greve, 2004; Luft & Shields, 2007; Tillema, 2005). Additionally, existing empirical studies have not been able to paint a clear picture of the relationship between contingent factors and management accounting practice

because they neither studied all the dimensions of this relationship nor produced consistent findings. For example, most of these studies have not considered all the dimensions of contingent factors. The external environment can be studied according to its dynamism, heterogeneity and hostility. Macintosh and Daft (1987) point out that there is lack of studies that appraises all the contingent variables*. Also, Fisher (1995) claims that the main limitation of contingency theory empirical research is that studies only consider one contingent variable and one control aspect at a time. Furthermore, the need for more research on MAPs, and the lack of knowledge in relation to current use of MAPs, especially in developing countries, are well documented in the literature (Hopper, Tsamenyi, Shahzad, & Danture, 2009; Joshi, 2001). Thus, this study attempts to explore the use of MAPs and meet whose needs as well as the relationships between the usefulness of MAPs and contingent factors, and their influence on organisational performance in a developing country, namely Libya. Libya was selected as the research setting because there are very limited MA studies in this country, especially exploring the relationships among constructs based on different forms of contingency fit, and because it was possible to obtain data, as it is the researcher's home country.

1.5 Research Aim, Objectives and Questions

As explained in the previous sections, this study aims to examine MAPs from a contingency perspective and ascertain possible impact of this relationship on organisation effectiveness in Libyan companies. To achieve this main aim, the following objectives are set for this research study:

1. To determine what MAPs currently exist in Libyan companies.
2. To determine the purposes of MAPs usage in Libyan companies and the level of satisfaction with them.

* This deficit is still till now, see Chapter three

3. To examine the relationship between contingent factors and MAPs in Libyan companies.
4. To examine the relationship between contingent factors and organisational performance through MAPs in Libyan companies.
5. To investigate management accountants' perceptions of the relationship between contingent factors and MAPs.

These objectives will be achieved through answering the following questions:

1. What MAPs are currently used by Libyan companies?
2. What are the purposes of MAPs usage in Libyan companies and to what extent are these companies satisfied with them?
3. What relationship exists between contingent factors and MAPs in Libyan companies?
4. What relationship exists between contingent factors and organisational performance through MAPs in Libyan companies?
5. How do management accountants perceive the relationship between contingent factors and MAPs?

1.6 Research Methodology

In order to investigate these issues, this research makes extensive use of the relevant literature. The aim of this part of the work is to have a comprehensive understanding of the factors that influence MAPs from a contingency theory perspective, and also to enhance the validity and reliability of the variables to be measured in this study. In addition, the literature is used to identify the factors that potentially influence the adoption management accounting practice, and adapt these to the Libyan context.

Five contingent factors (i.e. external environment, business strategy, organisational structure, technology and organisational characteristics), including 14 variables which are expected to influence the usefulness of MAPs, are adopted for this research. Two forms of contingency fit, which are drawn from the literature and prior studies, have been adopted in order to develop research

questions and hypotheses. These are the congruency approach (selection approach) and the contingency approach (interaction approach), namely the mediation model.

As stated by Bryman and Bell (2007), the research problem determines the method by which this problem is handled. For the design of this study, the philosophy underpinning this study lies between two extreme ends of the philosophical paradigm; but it is located much closer to positivism than phenomenology. In addition, the research is based mostly on the deductive approach, since the hypotheses are developed based on the literature of contingency theory and MAPs. Quantitative data and statistical packages are used for testing the hypotheses. However, some in-depth interviews were conducted with 10 Libyan companies to gain supplementary data, and a better and deeper understanding of the research issues.

The questionnaire draws and adapts many questions from previous studies, as well as devising new ones. The questionnaire consists of eight sections; each section includes a set of questions relating to a specific research issue. The first and second sections are devoted to collecting general information on the respondents (job, academic qualifications and experience) and the surveyed companies (ownership, industry type, year of establishing business and number of employees). The third section is about the contingent factors. The fourth, fifth and sixth sections focus on the use of MAPs and their purposes, including costing, budgeting and performance measurement practices. The seventh section asks questions about the MAPs change during the last five years, also including costing, budgeting and performance measurement practices. The final section concerns the participants' perceptions of the relationship between contingent factors and MAPs. The questionnaire was administered to 233 Libyan companies during the period July-September 2009. A total of 123 useable questionnaires (52.8%) were received, after excluding 9 (3.9 %) questionnaires which were unusable/partially completed. A pilot study was conducted and issues regarding the reliability and validity of the study instrument were considered. Descriptive

statistics (means and standard deviations) and advanced statistical tests (e.g., Simple Regression and Multiple Regression) were employed to analyse the data collected using the SPSS statistical package.

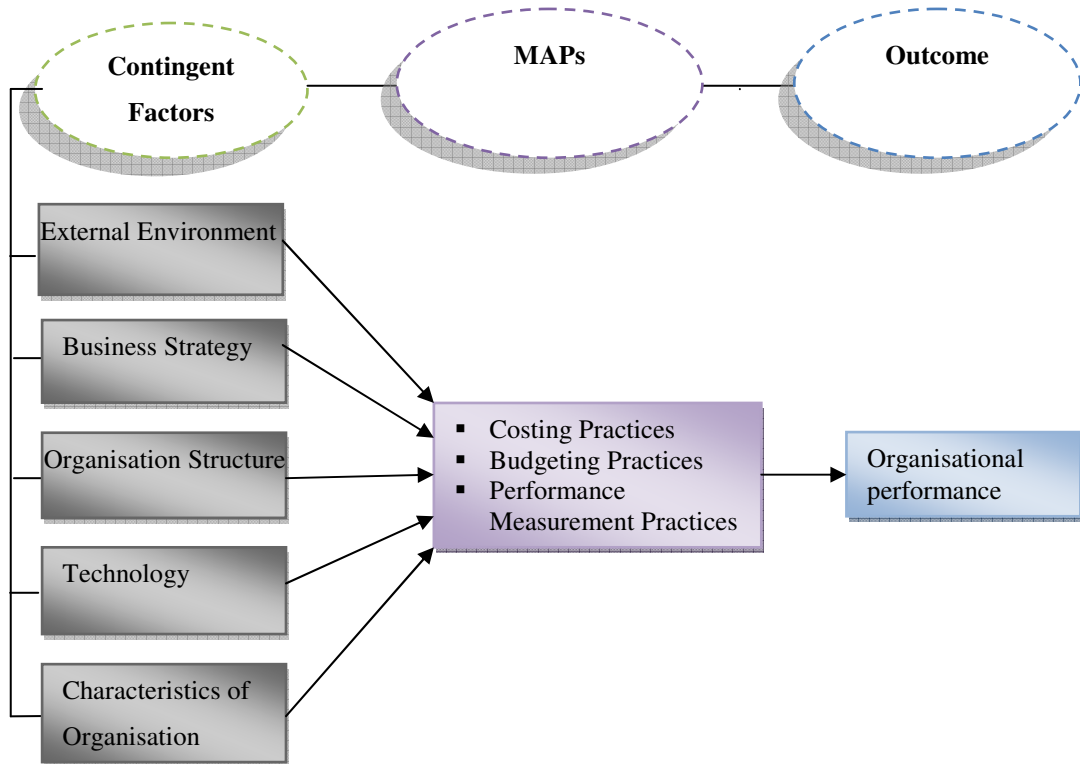
Furthermore, ten face-to-face interviews were conducted with the respondents after they completed and returned the questionnaire. Moreover, the additional information collected from interviews further supported the survey data. It is hoped that this combination of primary data sources will help build a clear picture of MAPs.

1.7 Research Theoretical Model

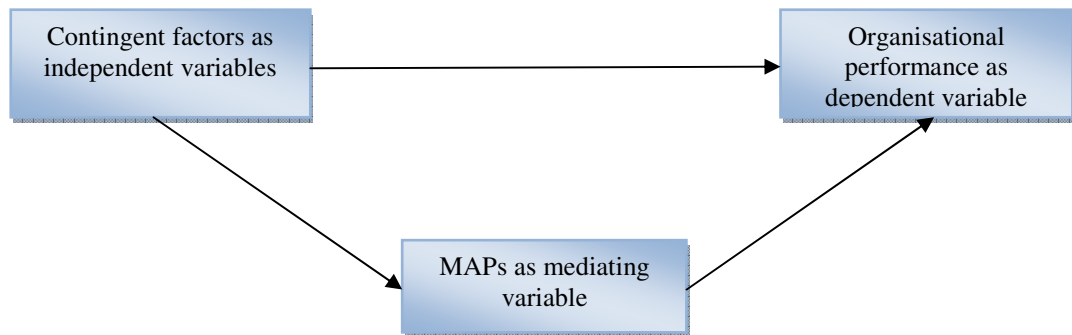
Figure 1.1 depicts the theoretical framework of the study. As shown in this figure, the framework is divided into three parts. The first part identifies five contingent factors (i.e. external environmental, business strategy, organisational structure, technology and characteristics of organisation), which represent the independent variables of the study.

The second part is concerned with existing MAPs, that is, costing, budgeting and performance measurement practices, as dependent variables in the congruency approach (selection approach) and mediator variables in the contingency approach (interaction approach) (see Figure 1.1). The third part is concerned with the outcome of the interaction between the contingent factors and MAPs, so the organisational performance is considered as a dependent variable in the second approach (interaction approach).

Figure 1-1 The Research Theoretical Model



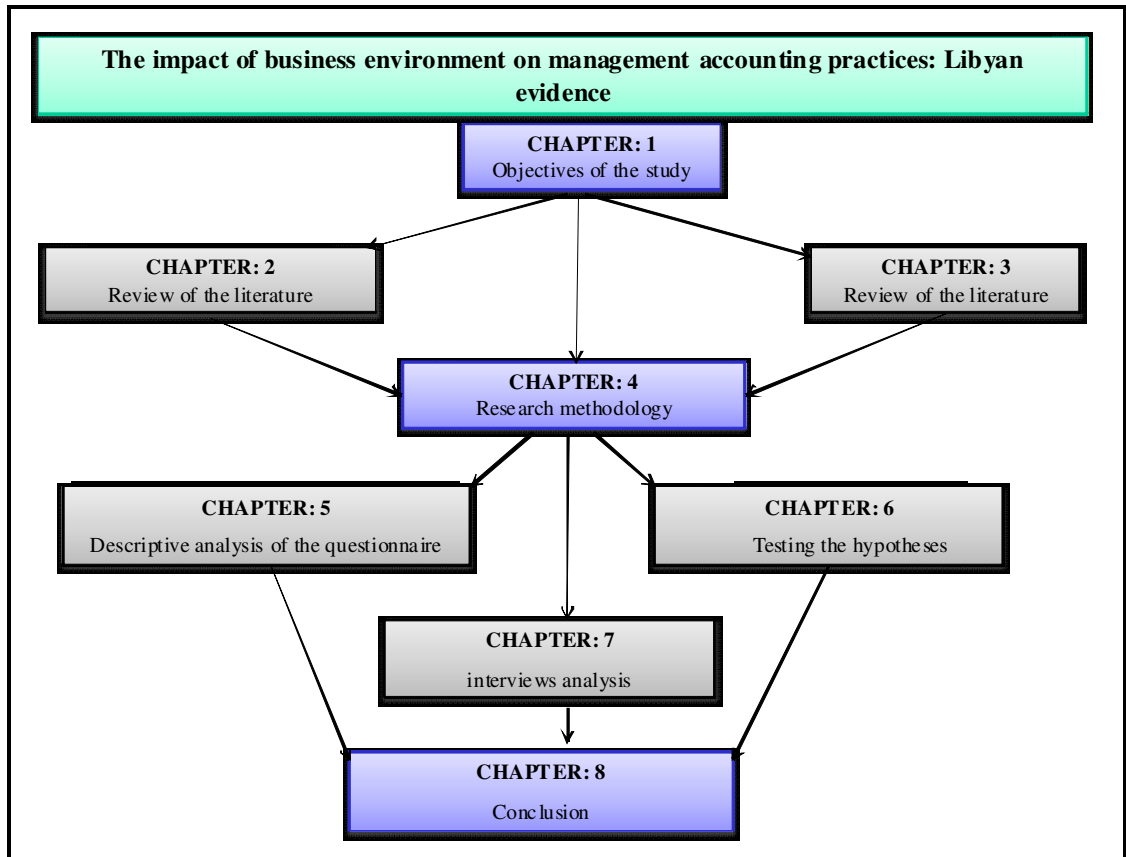
Mediation Forms of Fit



1.8 Organisation of the Thesis

In addition to Chapter One, the thesis consists of a further seven chapters, as depicted in Figure 1.2.

Figure 1. 2 Chapter Structure of the Thesis



Chapter Two presents a review of the literature related to contingency theory of MA. It includes the concept of contingency theory, a brief discussion of its historical development, categories of contingent variables, level of analysis in contingency studies, forms of contingency fit, and criticism of contingency theory and empirical studies applying it.

Chapter Three mainly reviews a number of relevant MA contingency empirical studies conducted in various countries. The chapter starts with an overview of contingency-based empirical studies of MAPs and then studies related to each of the contingent factors are reviewed and discussed according to five criteria. These criteria are: how the contingent factor was perceived and measured, how the contingency theory was applied to investigate the factor, which part of MAS was

examined, how the outcome (performance) was measured if it was included, and a discussion of the results. The limitations of these studies are highlighted and combined with the literature review in the preceding chapter, helping in the development of the research theoretical framework.

Chapter Four presents the hypotheses development process, which is first discussed along with the research variables, and provides an overview of the research methodology; focusing on the methods used in order to conduct this study. This chapter also presents details of the research process, including research methodology and research methods in the form of questionnaires and interviews, as well as the statistical methods for analysing the data collected from the questionnaire.

Chapter Five presents the empirical results obtained from descriptive analysis of the data collected using the questionnaire survey. It seeks to fulfil the first and the second objectives of this research. The data in this chapter show the current use of MAPs (i.e. costing, budgeting and performance measurement practices) by the responding companies, as well as describing the importance of these practices for meeting the companies' information needs. In addition, the chapter describes purposes of using MAPs in Libyan companies, and participants' level of satisfaction. The remainder of this chapter demonstrates the MA change. This description is based in some cases on means and in others on percentages. The chapter provides a base for the following chapter, in which the hypotheses are examined.

Chapter Six presents the hypothesis tests by using several advanced statistical techniques, such as simple regression, multiple regression and mediation regression. It examines the relationship between suggested contingent factors and the usefulness of MAPs. It also provides detailed discussion of the assumptions of the statistical tests used in this study. The data analysis in this chapter is used to achieve the third and fourth objectives of this research.

Chapter Seven includes both quantitative data collected using the questionnaire survey and qualitative data collected from ten face-to-face interviews with respondents from Libyan companies. This chapter aims to discuss and provide participants' perceptions about the possible impact of the contingent factors on MAPs. Therefore, it is designed to fulfil two main purposes, firstly to investigate the participants' perceptions of the relationship between contingent factors and the MAPs (i.e. the fifth objective of the research); and secondly to gain further information and explanation regarding the relationship between contingent factors and the MAPs (i.e. the third and the fifth research objectives).

Finally, Chapter Eight summarises the major results of this study and provides related discussion. In addition, it discusses the study's contribution to knowledge and presents some recommendations based on the study findings. The limitations of the study and opportunities for future research are provided at the end of the chapter.

Chapter Two

An Overview of the Contingency Theory of Management Accounting

2.1	Introduction	32
2.2	Definition and Origins of Contingency Theory	32
2.3	The Contingency Theory of Management Accounting Research	34
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2.1 Introduction

This chapter reviews the literature related to contingency theory and its variables. Section 2.2 discusses the concept of contingency theory and offers a brief outline of its historical development. Section 2.3 presents the concept and models of the contingency theory of management accounting research. A brief different levels of analysis and models of contingency studies is given in Section 2.4, whilst section 2.5 discusses the categories of contingent variables found to have an effect on MAS/ management control systems (MCS) in previous related studies. Section 2.6 shows the various concepts of fit in contingency theory, and the last section presents the limitations of contingency theory and the studies applying it.

2.2 Definition and Origins of Contingency Theory

Various theories have been increasingly considered concerning how organisations should be administered. The early theories of organisation adopted a universal approach to determine the best method for carrying out special tasks, regardless of the surrounding circumstances (Watson, 1975). Traditional management theories such as scientific management theory, administrative theory and bureaucratic theory consider there is only one way to structure an organisation, suggesting that there is no significant relationship between organisational structure and contextual variables; thus, there is only one optimal way in which affairs should be organised that is appropriate to all organisations and all circumstances (Watson, 1975). Organisations were described as closed systems, working in isolation from any other effects, including the force of environmental variables. These theories dealt primarily with two issues: one is concerned with official authority and close management, while the other is concerned with formal work roles throughout the organisation.

Therefore, both administrative theory and scientific management theory are full of prescriptions about which is the best organisational structure to be adopted by an organisation to reach the highest level of effectiveness. Recently, these theories have had a tendency to be contingent, seeking to link their prescription to a more specifically defined situation (Emmanuel, Otley, & Merchant, 1990). As a result,

these traditional theories have become inadequate and contingency theory has become a promising alternative (Kreitner, 1998). It seeks to take a step forward from the universal approach of management towards the contingent approach. It shows that one case depends upon another or that different aspects of an organisation depend upon the circumstances of the whole organisation (Daft, 1992). The theory describes and explains how the organisational characteristics of the organisation have a causal relationship with each other. Kreitner (1998, p. 55) defined the contingency approach as:

An effort to determine through research which managerial practices and techniques are appropriate in specific situation

Covaleski, Dirsmith and Samuel (1996, p. 4) defined contingency theory as:

“A theoretical perspective of organizational behavior that emphasizes how contingent factors, such as technology and the task environment affected the design and functioning of the organizations”.

Contingency formulations emerged in the mid 1960s as an important perspective of organisation theory, and were developed in the organisation theory literature through the empirical researches of Burns and Stalker (1961), Woodward (1965) and Lawrence and Lorsch (1967) as a response to the rapid changes and increasing environmental uncertainty (Kreitner, 1998). An important set of contextual factors was proved by Burns and Waterhouse (1975) in their study as an explanation of management accounting differences among and between firms.

It has been stated that an efficient organisation structure is contingent on the organisation's context (Waterhouse & Tiessen, 1978), where the efficiency of the organisation depends on the organisational characteristics. Contingency theory came to be the opposite of the universal approach through looking at the organisational structure as a variable that is influenced by other factors such as independent variables. Burns and Stalker (1961) and Lawrence and Lorsch (1967) found that there is an association between external environment and organisational structure, while others such as Woodward (1965) and Perrow (1967) emphasised the influence of technology as a determinant of organisational

structure, and Pugh, Hickson, Hinings and Turner (1969) reported the impact of organisation size to be more pervasive.

2.3 The Contingency Theory of Management Accounting Research

Before the 1970s, contingency-based research was no longer a tradition to be adopted for studying aspects of a MAS. Otley (1980, p. 416) states that:

This movement towards a contingency approach occurred during the 1970s due to partly, to explain otherwise contradictory observations and partly because of the influence of the prior development of the contingency theory of organizations.

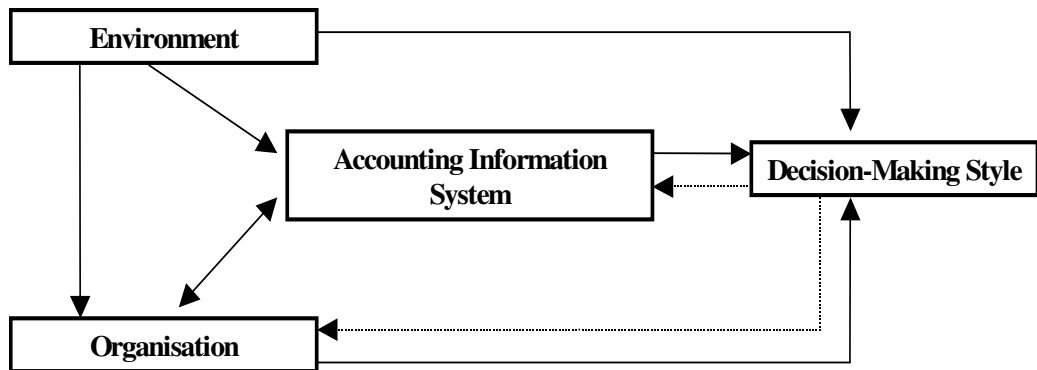
Chapman (1997) argued that contingency theory did not obtain an agreement until the strategy was being typologically modified by Miles and Snow (1978). Since then, accounting academics have recognised the fundamental importance of the organisational context of an accounting system being efficient, and contingency theory has started to catch the researcher's attention and become the vogue in published works on management accounting. Dent (1990) argues that contingency theory has become one of the dominant methods of control system design for explaining the difference in relationships between environmental and organisational variables and contingency variables.

The contingency approach to the design of MAS is predicated upon the idea that there is no universally relevant accounting system that equally applies to all enterprises in all circumstances (Fisher, 1995; Otley, 1980). It suggests that when the specific circumstances of an enterprise change, a MAS should acclimatise if they are to remain effective (Jones, 1985). In other words, there is no satisfactory accounting system in general but there is a system that interacts with the company's surrounding variables, meaning that there is no perfect design for a MAS and the best design depends on the circumstances where the company works. Contingency variables have clarified why accounting systems have been different from one situation to another. When the compatibility between the accounting system and organisational structure and other contingent variables increases, the organisation's performance will also increase. Therefore, MAS designers should take care of the effect of these variables on this system.

The importance of contingency theory for analysing MAS has been the central issue of a large number of studies for the past three decades or so. In addition, it has a long tradition in studying management control systems (Chapman, 1997; Chenhall, 2003). The conflicting results with no satisfactory precedent studies instigated the use of contingency theory (Otley, 1980). In addition, there is satisfaction among the researchers about the potential of contingency theory based on specifying the harmony between management accounting and organisational variables, as it helps to incorporate the influence of a variety of variables on the design and application of the MAS (Haldma & Laats, 2002). Thus, it assists the designer in designing and choosing a shape for the accounting system that guarantees to provide appropriate information on planning, control and performance measurement. Contingency theory should choose a specific form of accounting system that fits the surrounding circumstances and demonstrates an appropriate match. Likewise, according to Otley (1980), the contingency framework was adopted by many researchers in management accounting to interpret the results of empirical research much better.

Gordon and Miller (1976) suggested a framework to explain the complex relationship between four parts: environment, organisation, accounting information system and decision-making style of the executives (see Figure 2.1). They describe the environment according to its dynamism, heterogeneity and hostility. The environment directly impacts the accounting information system, organisation structure and decision-making style. Organisation structure is divided into five organisational attributes that are intended to be illustrative rather than exhaustive; these are: (1) decentralisation, (2) differentiation, (3) integration, (4) bureaucratisation and (5) resources. The organisation structure impacts both the accounting information system and the decision-making style, besides being affected by the accounting information system. The accounting information system has mediated the model which is influenced by both the organisation structure and the environment; it has an impact on decision-making style. Additionally, feedback from the decision-making style of the accounting information system and organisation structure can be considered.

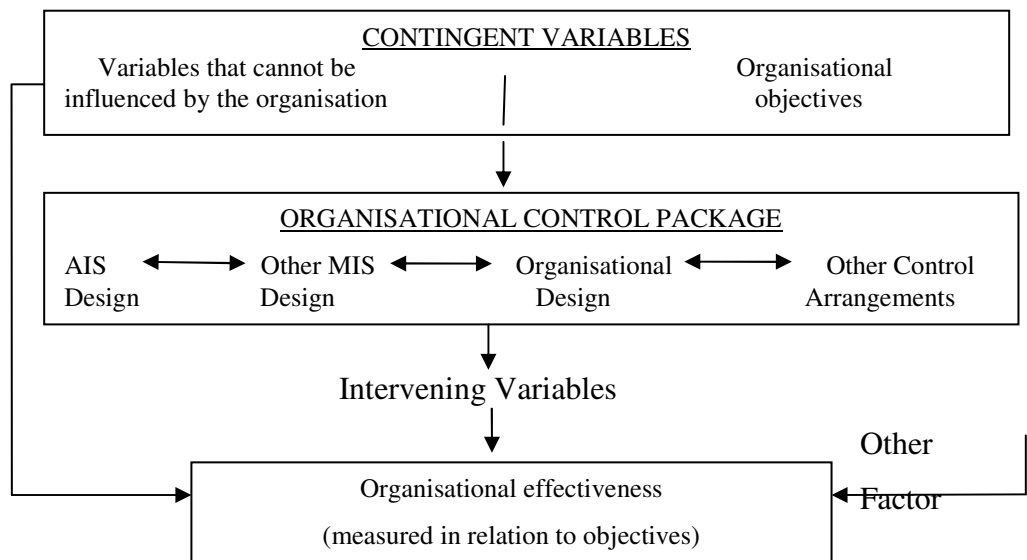
Figure 2-1 The Interrelationship between Environment, Organisation, Decision-Making Style and Accounting Information System.



Source: Gordon and Miller (1976)

Otley (1980) explains how MAS is affected by various contingent variables such as the nature of the external environment, adopted strategies and production technology, and how they are incorporated into the framework of organisational system mechanisms (Figure 2.2).

Figure 2-2 A Model for Contingency Research on MAS Design

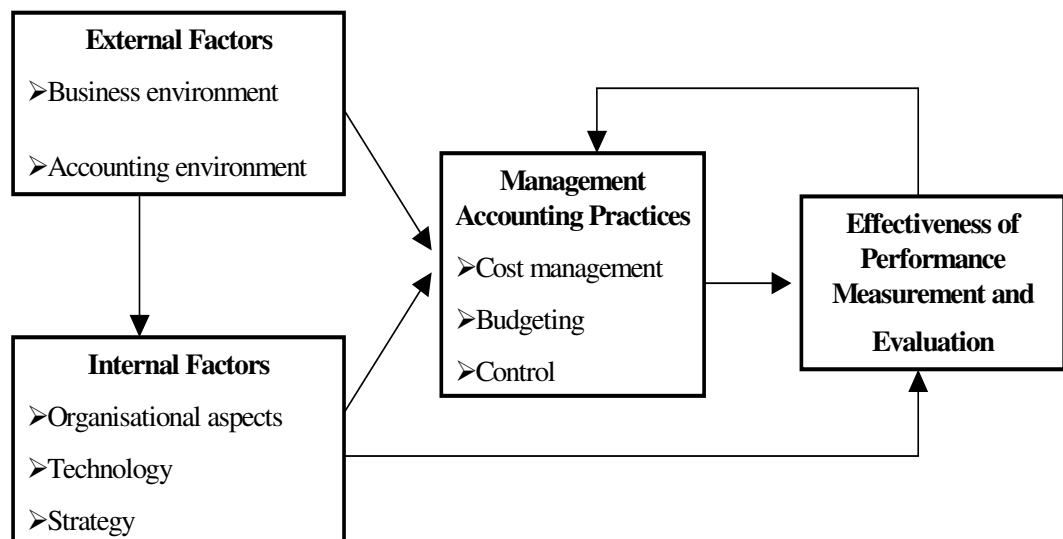


Source: Otley, 1980

He revealed that management accounting using a contingency approach has attempted to associate MAS with the surrounding contingent factors such as competition and strategy.

In addition, Haldma and Laats (2002) classify these contingent factors into two general categories: internal and external factors. Internal factors are concluded as organisational characteristics, technology and strategy. External factors show the aspects of external environment which include the business environment and accounting. In their model, they show that environmental factors have a dual effect on the internal factors on one hand and on the characteristics of management accounting practice on the other. Also, the internal factors affect both accounting practice and the effectiveness of performance measurement and evaluation. In addition, there is a mutual influence between MAPs and effectiveness of performance measurement and evaluation (Figure 2.3).

Figure 2-3 Theoretical Framework of the Contingency Approach



Sources: Haldma and Laats (2002)

Although contingency theory has developed management planning and control beyond pinpointing contingent variables that have an impact on organisational and accounting design (Gordon & Miller, 1976), the contingency-based research does not develop enough to include the various aspects of accounting. It can be noted that there is no consensus about what specific contingent should have an effect on a particular configuration of accounting information. In the same way the nature of the appropriate contingent variable has not yet been elucidated and requires greater theoretical study.

2.4 Levels of Analysis of Contingent Control Studies

Fisher (1995, 1998) categorised prior management control researches into four levels of analysis complexity. These levels were classified on the basis of the type of variables (i.e. contingent variable, management control system (MCS) and outcome variable) integrated in the study. He argues (1998) that, although the complex levels (e.g. level 3 and level 4) have increased, each one has a specific advantage and disadvantage. Therefore, it cannot be said that the higher levels of analysis are superior to the lower levels. However, there are others such as Otley (1980) who claim the opposite state; they argue that contingency models do not include outcomes are weak. This model supposes that the existence of a contingent variable will lead to an increase in the likelihood of a firm using some of the control systems.

2.4.1 Single Contingent Variable with Single MCS

This level of analysis shows the relationship between a single contingent variable and a single management control system. The effect of this relationship on organisation's outcomes has not been examined in this perspective. Many of the early attempts at studying MCS were based on contingency theory, especially those conducted in the 1970s, adopted this approach (e.g. Macintosh & Daft, 1987; Merchant, 1985; Simons, 1990).

2.4.2 Single Contingent Variable with Single MCS in Relation to Performance

This level of analysis developed the previous level by adding the organisation's outcomes, in light of the nature of the relationship; thus, it examines the influence of the relationship between a single contingent variable and a single management control system on the organisation's outcomes. Therefore, the interaction between the contingent variable and the control mechanism should affect, either positively or negatively, the outcome, namely, the unit or organisation performance. This approach was mostly used in management control in the 1980s (Govindarajan & Gupta, 1985; Simons, 1987).

2.4.3 Single Contingent Variable with Multiple MCS in Relation to Performance

The third level of analysis examines the relationship between a single contingent variable, multiple control system and organisation outcome. Fisher (1995, 1998) argues that in such a type of analysis, it is possible that there is complementation (Govindarajan, 1988) or substitution (Otley, 1980) between the different aspects of MCS. Fisher (1998, p. 59) stated that:

Control system substitution implies that use of different control mechanisms can achieve the same desired result. On the other hand, complementary control systems are used in a reinforcing fashion. Most likely, some control mechanisms are used in a complementary way and others are used as substitutes, depending on the firm's contingent factors and control strategy

2.4.4 Multiple Contingent Variables with Multiple MCS in Relation to Performance

This analysis level is based on the joint linkage between multiple contingent variables, multiple control systems and organisation outcomes (Fisher, 1995, 1998; Fisher & Govindarajan, 1993; Merchant, 1981). However, the common problem of this level is that some contingent variables require a conflicting control system (Gresov, 1989) when they are analysed simultaneously. Therefore, the designing of the optimal MCS that fits all contingent factors is not straightforward. It means that MCS design may deviate from the requirements of at least one contingent factor.

Fisher argues that there may be two ways to resolve this clash:

- Design a multifaceted management control system that involves a management control mechanism for each contingent factor. In this case, nevertheless, internal inconsistency may arise, as a result of addressing the conflicting contingent factors. In this context, Child (1975) reported that internal consistency in a control system has a positive impact on organisation performance, while internal inconsistency has a negative impact on organisation performance.

- Design a control system that is consistent with at least one contingent factor while other contingents are ignored. However, in this solution, the organisation or the designer needs to know which contingent factor has to be considered and which one ignored, as the ignoring of an important one may result in lower performance of the organisation (Gresov, 1989).

2.5 Contingent Variables Categories

In literature, several contingent variables have been suggested for management control that has been accepted as having an effect on the adoption and design of a MCS. In this context, many researchers (e.g. Fisher, 1995; Merchant, 1998) have indicated that, owing to the multiplicity of contingent variables, it has been difficult to clarify the influence of each variable separately. Chenhall *et al.* (1981, p. 9) point out that:

A fundamental difficulty which is associated with contingency approaches to management accounting is the lack of consistent classification of variables that describe the contextual setting (the independent variables) and the purpose of the accounting system (the dependent variable).

As a result, researchers have categorised these contingent variables into many classifications to clarify them. Mintzberg (1979) suggested four groups for classifying the contingent variables that are expected to have an impact on the structure of an organisation: the organisation's age and size, the technical system used (e.g. management style), the external environment, and its power relationships. Chenhall *et al.* (1981) argue that they can be classified into two groups: the first group – variables falling into broad dimensions, for example 'homogeneous–heterogeneous' and 'stable–dynamic', regarding the nature of the environment (e.g. Hayes, 1977). The second group, the variables that are classified into particular aspects, such as size, age and ownership of the organisation, organisational structure, and the particular characteristics of the external environment; for example, uncertainty, hostility, diversity (Govindarajan & Fisher, 1990).

Other researchers have classified these variables into four broad classifications (Drury, 2008; Merchant, 1998): external environment, technology, organisational aspect and industry, and business strategy variables (see Table 2.1), Fisher (1995) added a fifth categorisation to include knowledge and observability variables. However, the current study sorts these variables into five categories (i.e. external environment, business strategy, organisational structure, technology, and characteristic of organisation).

Table 2.1 Contingency Variables Classified by Major Categories

The External Environment Variables

Environmental uncertainty
 Environmental complexity
 Intensity of competition

The Technology and Interdependence Variables

Level of technological complexity (unit, mass, and process production)
 Production routine and programmability variables
 Level of interdependence(pooled, sequential, reciprocal)

The Organisational and Industry Variables

Organisation size
 Organisation structure
 Organisation culture
 Management style
 Industry variables

The Strategy and Mission Variables

Diversification (corporate) strategy (related and unrelated diversification)
 Business (competitive) strategy (low cost-differentiation, defender-prospector)
 Operational (manufacturing) strategy
 Strategic mission (build, hold, harvest, and divest)

Source: Adapted from Merchant (1998, p. 729) and Drury (2000, p. 649).

2.5.1 The External Environment Factor

The external environment consists of all variables that exist outside the organisation and which may have an impact on the organisation and its performance (Daft, 1992). Although these variables are outside the control of organisations, they should be taken into account for them to survive. Many theorists have attempted to identify a specific characteristic of environmental

characteristics to consider the effects of its different dimensions. In the work of organisational theorists such as Duncan (1972), Khandwalla (1972) and Teo and King (1997), three environmental dimensions can be inferred: dynamic dimension (changeability and predictability), heterogeneous dimension (complexity) and hostility dimension (the scarcity of resources and the degree of competition). These three dimensions of the external environment are likely to have substantial impacts on management accounting design.

Dynamic environment refers to the rate of turbulence, the expanding changes, fluctuation, unpredictability of environmental events and innovation in the industry. Information about such an environment is difficult to get and is sometimes contradictory and unreliable. It is an environment in which the ability to take calculated risks in the face of uncertainty is always implemented. Many occurrences can be the source of perceived dynamism such as consumer tastes, new technologies, sources of supply, competitors' products and government regulation. When the environment is highly turbulent, the importance of information about the position of the market, crucial prospective changes, and the like in the future will be of great importance. Khandawalla (1972) argues that managements of organisations that operate in a turbulent environment need to be flexible to cope with high turbulence (Duncan, 1972; Lawrence & Lorsch, 1967).

Heterogeneous environment refers to variations in the required product market, orientation, consumer characteristics, production technologies and raw material markets. It can be operationalised as diversity in customers' buying habits, diversity in the nature of competition and diversity in product lines.

Hostile environment refers to the degree of threat resulting from competitor actions, scarcity of sources and governmental regulations. It can be operationalised as the threat posed by the availability of resources, price competition and competition in product quality. Khandawalla (1972) considered that the main thing that leads to the environment becoming hostile is price competition. The force of price competition and the attempts by competitors to break down the price lead to ongoing conflicts between organisations. This requires organisations to reduce their costs, improve their systems' cost, systems'

accounting, and information systems in general, and search for the best alternative to be able to reduce their price when the competition makes it necessary.

Although some researchers on organisational environments have considered dynamic, heterogeneous and hostility dimensions of the environment as sources of environmental uncertainty, the uncertainty aspect has received a lot of attention as the main variable of the external environment. Thus, it is argued that the research on the external environment primarily represents the level of uncertainty (Fisher, 1995). Therefore, since the 1970s, perceived environmental uncertainty (PEU) has been perceived as one of the most important factors in accounting research, especially by those researchers who have studied the relationship between PEU and organisational structure (Gordon & Narayanan, 1984), MAS design (Chenhall & Morris, 1986; Khandwalla, 1972) and business unit performance (Govindarajan, 1984).

Daft (1992) defined uncertainty as lack of adequate information relating to environmental variables for making decisions about specific issues. Other researchers (Chapman, 1997; Galbraith, 1973) defined PEU as the level of information available to achieve a particular task by the organisation. Miller (1987) states that PEU refers to top managers' perceived inability to forecast the external environment condition of an organisation (Tymon Jr, Stout, & Shaw, 1998).

Daft (1992) and Duncan (1972) have attempted to link the characteristics of environment which in organisations operate with a level of uncertainty. They divided the environment into two dimensions, static–dynamic dimension and simple–complex dimension. The static–dynamic dimension is defined as the degree to which the elements of decision making remain mainly the same and do not change over time. The simple–complex dimension is defined as the number of elements that have to be taken into account when the decision is made. In addition, these elements extend to what is not different from other decision making. According to the degree of dynamic and complex conditions, an organisation could be perceived as low uncertainty when it operates in a simple–static environment, but it could be perceived as high uncertainty in case of a

complex–dynamic environment, or as moderate uncertainty when the environment is simple–dynamic or complex–static.

Figure 2-4 Framework for Assessing PEU

	Simple + Stable =Low Uncertainty	Complex + Stable = Low- Moderate Uncertainty
Stable	<ul style="list-style-type: none"> • Small number of external elements, and elements are similar • Elements remain the same or change slowly 	<ul style="list-style-type: none"> • Large number of external elements, and elements are dissimilar • Elements remain the same or change slowly
	Simple + Unstable = High Moderate Uncertainty	Complex + Unstable =High Uncertainty
Unstable	<ul style="list-style-type: none"> • Small number of external elements, and elements are similar • Elements change frequently and unpredictably 	<ul style="list-style-type: none"> • Large number of external elements, and elements are dissimilar • Elements change frequently and unpredictably
	Simple	Complex

Source: Daft (1992)

Generally speaking, the external environment makes managerial planning, control and performance measurement more difficult according to the unpredictability of future events. Chapman (1997) argues that accounting may play important roles in all levels of uncertainty encountered.

Gordon and Miller (1976) argue that when there is a high level of environment uncertainty as a result of dynamism and hostility the organisation tends to adopt a large amount of information (i.e. financial and non-financial). In addition, the different types of competition (certainty or uncertainty, static or dynamic etc.) have different impacts on the management accounting technique. In this context, it is argued that the level of sophistication of MAS is influenced by the type of environment and managers may need additional information to manage the uncertain, dynamic, complex and turbulent environment.

2.5.2 Businesses Strategy Factor

The second category of contingent variables is business strategy. However, unlike other contingent factors it is seen as a tool used by managers to achieve a

competitive advantage, influencing the external environment, organisation culture, organisational structure and MCS, rather being an element of contingent factors itself (Chenhall, 2003; Dent, 1990; Gordon & Narayanan, 1984; Langfield-Smith, 1997; Miles & Snow, 1978; Porter, 1980; Simons, 1987; Waterhouse & Tiessen, 1978). Business strategy is concerned with how the organisation copes with business competition. It has been found that there are at least three strategic typologies: Miles and Snow's (1978) typology distinguished business strategy into four classifications, namely, defenders, prospectors, analysers and reactors. Porter's (1980) perspective identifies it as three classifications: cost leadership, differentiation and focus. While, Gupta and Govindarajan (1984) illustrate that business strategy refers to the nature and stages of the product life cycle. This indicates the organisation's intended trade-off between market share growth and maximising profits; so they classified it into four batches, namely, build, hold, harvest, and diverse competitive strategies. Arguably, these classifications are not significantly different and can be reconciled with prospectors/builders/product differentiators at one end of a continuum and defenders/harvesters/cost-leaders at the other end.

2.5.2.1 Miles and Snow's Typology (1978)

The work of Miles and Snow (1978) is considered to be one of the earliest studies to identify four generic strategic types of organisation, according to the rate of change in products or markets. They build on Child's (1972) strategic-choice approach to explain the inter-relation between strategy, external environment and organisational structure (Kald, Nilsson, & Rapp, 2000).

They argue that three major subjects or issues face the management in responding to their environment. These issues are business issues (including, for example, production and markets), technology issues (for example, production resources required in the form of technology and staff) and managerial issues (relating to administration of the business unit). To support and solve this problem, Miles and Snow categorised organisations into four organisational types: defender, reactor, analyser and prospector.

Prospector Strategy

This strategy is characterised by continually searching for new opportunities, new market areas, and the product–market domain, as they are the creators of change and uncertainty to which their competitors must respond. However, organisations following this strategy can gain benefits from launching new products, developing markets and also by focusing on meeting consumer needs with new product developments, with the co-operation of heavy investors involved in researching and development. In addition, Abernethy and Guthrie (1994) described this as being the strategy as innovators, flexible and entrepreneurial in their outlook and continually pioneering changes in their product market.

The information that is needed to evaluate performance, take corrective action and make decisions is distributed among all divisions in an organisation, rather than just top level management; thus, it requires decentralised control systems and emphasis on broader planning processes (contrary to defenders).

Defender Strategy

This typology focuses on narrow product–market domains and does not tend to search outside their domains for new opportunities. Top managers in this type of organisation are experts in their business-limited area of operation. Snow & Hrebiniak (1980, p. 336) argue that this strategy

“tries to protect its domain by offering higher quality, superior service, lower prices, and so forth. Often this type of organization is not at the forefront of developments in the industry — it tends to ignore industry changes that have no direct influence on current areas of operation and concentrates instead on doing the best job possible in a limited area”.

This type appears more predisposed to pursuing tight internal control, and this disposition appears compatible with insourcing. Langfield-Smith (1997) believes that the functions vital for organisational success are finance, production and engineering through efficiency, with less stress on product market innovation. As a result of this narrow focus, these businesses seldom need to make major adjustments in their technology, structure or methods of operation (Sohn, You,

Lee, & Lee, 2003). Instead, they devote their primary attention to improving the efficiency of their operations.

Analyser Strategy

This strategy combines a mix of the characteristics of both prospector and defender strategies. Therefore, this typology is applied by organisations that operate in an environment where there are simultaneously two climates, one relatively stable, the other changing. The organisations here attempt to maintain a stable market, dealing with traditional production of a limited line of products or services, operating routinely and efficiently through the use of formalised structures and processes. Simultaneously, these organisations monitor a carefully selected set of a promising new product entering a new market in turbulent areas. Consequently, this kind of strategy attempts to be stable in some positions and flexible in others (Sohn *et al.*, 2003).

Reactor Strategy

This describes the strategy of organisations where changes and uncertainty occur frequently in their organisational environments, but they seem not to have a consistent product–market orientation, nor are they able to respond effectively. Hence, these organisations are often not as aggressive in maintaining launched products and markets as some of their competitors, nor are they willing to take as many risks as other competitors. Because this type of organisation does not usually have a consistent strategy–structure relationship, they rarely make modifications of any sort until they are forced to do so by environmental pressures (Snow & Hrebiniak, 1980; Sohn *et al.*, 2003).

2.5.2.2 Porter's Typology (1980)

Alternative typologies have been developed by Porter (1980) to cope with competitive forces. He proposed that an organisation may serve the entire market using marketwide generic strategies or serve a particular segment of the market using the focus of generic strategies. For both marketwide and market segment

focuses there are two fundamental positioning strategies to outperform other competitive organisations in industry – cost leadership and differentiation.

Cost leadership Strategy

This type of strategy focuses on producing a product or providing a service at a lower cost than that of other competitive organisations' offerings in its industry. The product or service is often highly standardised to incur the lowest cost in the industry. Cost leadership allows for more flexibility in pricing and relatively greater profit margins. Cost leadership is achieved through economies of scale in marketing operations and administration, and the use of advanced technology. Porter (1980, p. 35) stated that:

This strategy requires aggressive construction of efficient-scale facilities, vigorous pursuit of cost reductions from experience, tight cost and overhead control, avoidance of marginal customer accounts and cost minimization in area like R and D, service, sales force, advertising, and so on.

Differentiation Strategy

This strategy focuses on making the product or service that is perceived as being unique in its industry (or appears so in the mind of the buyer) along dimensions that are widely valued by buyers. Thus, consumers believe that the product or service is unique among a group of similar competing services. Under this strategy, organisations place great emphasis on selecting specific attributes such as quality, high level of service, ease of access, convenience, reputation, and so on that many buyers in an industry perceive as important, being in unique positions themselves to meet those needs (Govindarajan, 1988; Porter, 1980). There are many ways to differentiate a product or service, but the attributes that are to be viewed as different or unique must be valued by the consumer. Therefore, organisations adopt differentiation strategies that depend on brand loyalty (reputation or image), distinctive products or services, and lack of good alternatives.

2.5.2.3 Gupta and Govindarajan's Typology (1984)

Gupta and Govindarajan (1984) and Govindarajan and Gupta (1985) introduced a further strategic typology, which is concerned with the stages of the product life cycle, including build, hold, harvest and divest strategies. This typology of strategy indicates the organisations' intended trade-off between market share growth and the maximisation of short-term profit (Langfield-Smith, 1997).

Build Strategy

This mission is concerned with increasing market share and competitive position, even at the expense of short-term profit and cash flow. This strategic mission is appropriate for a resource user, as a result of huge investment required to build a competitive position. Therefore, it is adopted by an organisation that has a low market share in high growth industries

Harvest Strategy

This kind of strategy is concerned with maximising short-term profit and cash flow even at the expense of market share. An organisation following such a strategy should be a resource provider, as the required investment is typically much less than the cash inflows. Consequently it is appropriate for an organisation to have a high market share in low growth industries.

Hold Strategy

This strategic mission falls between the two extremes, build and harvest strategies. It is used to protect the organisation's market share and competitive position. Under this strategy, the cash outflows (investments) of the organisation should usually be more or less equal to the cash inflows (returns). Organisations following this strategy typically operate with high market shares in high growth industries.

Divest Strategy

This strategy is adopted when an organisation has decided to cease operations, either through a process of slow liquidation or typical divesting of growth industries.

2.5.3 Organization Structure Factor

The term organisational structure is considered to be an important aspect of management control that influences the internal context. It is concerned with the formal specifications of different roles for organisational units, or tasks for groups or members, to carry out the organisation activities (Chenhall, 2003). By adopting a particular structural arrangement, some types of relationship and contact will be supported, while others will be ignored. Therefore, segmentation of organisational activities is considered to be an essential aspect of organising. Segmentation is a means of enabling the organisation's environment to be subdivided into parts that are manageable by decision makers (Chenhall, Harrison and Watson, (1981). Consequently the organisational structure has an impact on the efficiency of the unit tasks, the encouraging of individuals, and groups, control systems and flows of information that can help shape the future of the organisation.

The literature includes several definitions of organisational structure. Lawrence and Lorsch (1967) refer to structure, generically, as the way in which the organisation is differentiated and integrated. Differentiation is defined as the extent to which subunit managers act as quasi entrepreneurs where the method of achieving differentiation is via a decentralising authority; while integration is concerned with the extent to which the subunits act in ways that are consistent with organisational aims, involving rules, operating procedures, committees and the like. Similarly, Mintzberg (1979, p. 2)

“defines structure as the sum of the ways in which an organisation divides its labour into distinct tasks and then achieves co-ordination among them”.

Chenhall (2003) argues that organisation structure is one of the important factors in contingency research, while Pugh, Hickson, Hinings, and Turner (1968)

empirically indicated that the common uses of structural mechanisms in contingency research are centralisation, standardisation, formalisation and configuration.

Centralisation refers to the concentration of power and authority at higher levels in the organisation for decision making; so the decisions are taken by superior managers rather than subordinate managers (Williams & Seaman, 2002).

Formalisation refers to the extent to which there are procedures, rules and instructions to be adopted to perform the work activities. Damanpour (1991) proves the importance of its impact on the efficiency of work, the motivation of employees, control systems and information flows. The contingency researches have widely examined the relationships between the choice of organisation structure and other contingent variables (Otley, 1980). They focused on the fit between the organisation structure and the levels of uncertainty in the environment (Burns & Stalker, 1961; Drazin & Van de Ven, 1985; Galbraith, 1973; Lawrence & Lorsch, 1967), strategy (Chandler, 1962) and organisation's technology (Galbraith, 1973; Perrow, 1967; Thompson, 1967; Woodward, 1965).

2.5.4 Technology Factor

The contingency perspective emphasises an organisation's technology as an important contingent factor that is considered to have an effect on the design of organisations in general and the design of the operating core in particular (Otley, 1980). Macy and Arunachalam (1995) defined it as the tools, techniques or processes that are used to transform organisational inputs to outputs; it is possibly the simplest and longest established contingent variable used in management accounting and the distinction between different types of production techniques is a factor that has long been recognised as influencing the design of internal accounting systems.

The importance of technology has been extensively discussed by organisational theorists as a determinant of organisational structure. Woodward (1965) and Perrow (1967) are considered as having conducted major early studies concerning

the impact of an organisation's technology on its organisational structure. They recommended that organisational structure should be designed to fit production technology, which has come to be called 'technological imperative'. However, the term technology has no single acceptable definition in the literature for these studies.

Galbraith (1973) and Ramirez and Fornerino (2007) argue that technology means the systematic application of scientific or other organised knowledge to practical tasks. Kast and Gosenzweig (1985, p. 208) defined technology as "*the organization and application of knowledge for the achievement of practical purposes. It includes physical manifestations such as tools and machines, but also it includes intellectual techniques and processes used in solving problems and obtaining desired outcomes*" (p. 208). While Woodward (1965) defined it as the physical organisation of workflows according to the level of technological complexity or sophistication. She categorised it into three groupings: unit or small batch, large batch or mass production and continuous process. Unit or small batch is the least complex, while continuous process is the most complex.

The unit or small batch system is used in organisations where their production process is considered non-standard (tailored to specific customers' need); so frequency of personal contacts and organic structure is required. Continuous process is used in organisations in which the production process is considered completely standard, such as production of fluid substances, as in oil refineries; thus, it is highly mechanised and only a small but skilled labour force is required. A large batch system is used in organisations dealing with standard products, where it is necessary to produce large quantities to take advantage of economies of scale in keeping costs low and operating the highly sophisticated machines.

Perrow (1967) defined technology as the actions or problem solving that an individual performs upon an object, with or without the aid of tools or mechanical devices in order to make some changes to that object. Perrow (1967) classified technology as a 'frequency search' of exception in the product or service generation process and the search process nature. Frequency search refers to the high level of exceptional actions that will be taken to solve unexpected situations.

The other aspect, 'nature of search' refers to how individuals can respond to the unexpected situations and problems that arise in the context of their work. Four different types of technology were identified (routine, non-routine, craft and engineering), each type needing a specific organisational structure designed to fit the special requirements of the job.

Routine technology is adopted by organisations where their production process is described as being a low task variety; so procedures can be worked out for handling the production as with assembly line manufacturing. Non-routine technology is used in organisations that tend to have a high task variety and non-standard product manufacturing, so the conversion process is not analysable or well understood. This technology involves high levels of ambiguity and events that are not easy to predict. Thus, an organic structure is required to facilitate high levels of personal contact and participation to respond to contingencies and problems that may arise. Craft technology is used in organisations where the production process involves a fairly stable stream of activities, but it is not well understood, the jobs are not standardised and ready solutions are not available. This technology is similar to Woodward's unit technology, which requires talented and skilful labour, while engineering technology tends to be complex as there is a substantial variety in the tasks achieved. Organisations use this type of technology when a functional bureaucratic structure is required.

This contingent factor emerging from Woodward's (1965) and Perrow's (1967) studies seemed to have an effect on MAS. In this context, Otley (1978) argued that the distinction between different types of production techniques as defined by Woodward (1965) is a factor that has long been recognised as influencing the accounting information system design. Similarly, Merchant (1984) indicated a positive association between the degree of automation in the production process and the formality of budget systems used. Automation is one of the major characteristics of the new manufacturing technology.

2.5.5 Characteristics of Organisation Factor

Characteristics of organisation that have been considered as important contingent variables affecting both the structure and control system include size, age, ownership and type of industry. These organisational characteristics have been investigated as decisive for organisational structure (Child, 1973; Inkson, Pugh, & Hickson, 1970; Khandwalla, 1977).

Child (1973) argues that organisation size is the main variable in predicting organisational control strategies; additionally, this variable is the most organisational need for more manageable and better evaluation of activities and performance. Furthermore, increases in the size of an organisation increase the amount of activities, the quantity of information, decentralisation of departments, and amount of documentation. Moreover, Chenhall and Langfield-Smith (1998a) indicate that large organisations are more able to invest in developing new accounting.

Similarly, for the variable, age of organisation, Khandwalla (1977) and earlier, Inkson *et al.* (1970) indicated that older organisations seek to be more conservative, more disinclined to risk and more likely to use formalised procedures. In addition, Mintzberg (1979) and Ezzamel and Hart (1987) claimed that the age of an organisation is associated with formalised behaviour, while it is suggested that the structure of an organisation is affected by its history. Mintzberg (1979) argues that as organisations age, all other things being equal, they repeat their work, with the result that it becomes more predictable, and so more easily formalised. Consequently, it can be maintained that old organisations are likely to be more formalised, adopting formal methods of control such as MAS, while young organisations tend to be less formalised, relying more on informal methods of control and communication such as direct personal contact and personal observation, etc.

As an explanatory variable, the type of ownership has important implications for organisational structure. It may have an impact on the organisation's decision-making process such as finance source, marketing policy, technology adoption. A

distinction has been made between government owned (publicly owned) and privately owned organisations. Both Pugh *et al.* (1969) and Khandwalla (1977) point to publicly owned organisations as tending to be more bureaucratic and less efficient, in contrast to privately owned organisations that depend on a high degree of autonomy level of decentralisation.

Likewise, Drury (2008) claims that industry type has an influence on organisational structure and control systems; for example, a manufacturing organisation requires a structure that is different from that applied in non manufacturing organisations. Manufacturing organisations depend more on machines, invest more in research and development of technology, whereas non manufacturing organisations are more reliant on human resources. In addition, the provision of services by non manufacturing organisations is more heterogeneous, while manufacturing organisations describe their production as relatively homogeneous. Therefore, it could be claimed that manufacturing organisations tend to have a more centralised, formalised and formal control system, while non manufacturing organisations are likely to be less formalised, less centralised and rely more on a sometimes informal control system with a discretionary nature.

According to Otley (1987), the impact of size measured by number of employed on MAS is significant but it probably exerts most of its influence indirectly through organisation structure. In the Indian context, Joshi (2001) reported the effect of size on the adoption of newly developed practices. Dent and Ezzamel (1987) investigated the relationship between age of organisation and the degree of sophistication of MAS, but such a relationship was not found. Scapens and Yan (1993) reported a negative relationship between government ownership and accounting information systems. They found government ownership of Chinese enterprises to be one of the key restrictions upon Chinese MAPs. Such a relationship may be regarded as important for the Libyan environment following the alteration of the country's economy from a socialist, state-controlled to an open market-based system and the appearance of private ownership. Similarly, Haldma and Laats (2002) found no clear evidence for the effect of foreign ownership on the design of accounting systems within Estonian manufacturing

companies. Guilding, Lamminmaki and Drury (1998), in their comparison between New Zealand and the United Kingdom, found there was no systematic relationship between industry type and budgeting and standard costing practices. Moreover, no significant relationship between industry type and management accounting change was found by Laitinen (2001) in Finnish technology organisations.

2.6 The Concept of Fit in Contingency Theory

Studies based on contingency theory have offered useful relationships among organisational structure, contextual factors and performance. The early contingency researches (Burns & Stalker, 1961; Lawrence & Lorsch, 1967) produced a broad acceptance of contingency theory. However, later studies provided different results (Kraft, Puia, & Hage, 1995; Tosi & Slocum, 1984). Several interrelated problems arising from contingency theory have caused much of the confusion in the empirical findings of contingency research as suggested in the literature (Drazin & Van de Ven, 1985; Gresov, 1989; Kraft et al., 1995; Schoonhoven, 1981; Tosi & Slocum, 1984). Tosi and Slocum (1984) reveal that most problems of contingency research are due to misunderstanding the main issues and the concept of contingency theory. Contingency theory maintains that organisational performance and fit are the two main issues or ideas that should be recognised and understood by researchers, using contingency theory to reach stronger research results (Tosi & Slocum, 1984). It is argued that a fit between one or more contextual factors and one or more organisational structure characteristics would lead to improved organisational performance (Drazin & Van de Ven, 1985). In this sense, the best configuration of each organisation should be different, responding to different contexts to achieve a privileged performance. In contrast, a misfit would lead to lack of communication and coordination, and as a result, poor performance (Selto, Renner, & Young, 1995).

The concept of fit is an important structure mass for the construction of theory in many areas of research (Drazin & Van de Ven, 1985; Fry & Smith, 1987; Thompson, 1967). Venkatraman (1989) argues that most of the problems of contingency theory lie in the absence of the corresponding schemes that have been

examined. Hence, he states that the major phrases using a postulate relationship are matched with, contingent upon and consistent with fit, congruence and co-alignment, but the translation of these verbal terms cannot be used as precise guidelines for analytical level. Therefore, the researchers should be aware of the mean fit to realise the right statistical tests for their fit choice (Drazin & Van de Ven, 1985; Schoonhoven, 1981). In this context, Drazin and Van de Ven (1985) argue that the main notion of contingency theory is 'fit'; the meaning of fit is considered as a crucial issue not only for contingency theory, but also for the collection of data and the statistical analysis of propositions. Thus, understanding the concept of fit will lead to more reliable research results and explain much of the vagueness in contingency research (Drazin & Van de Ven, 1985; Schoonhoven, 1981; Venkatraman, 1989).

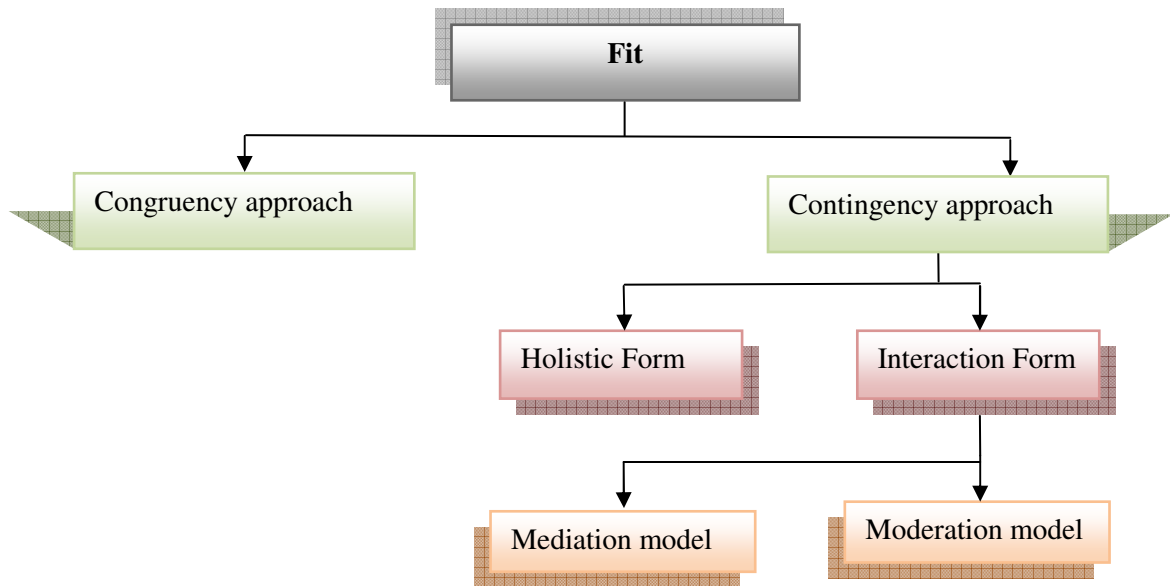
Similarly, Galbraith and Nathanson (1979, p. 266) argue that there is no clear definition of the meaning of fit:

Although the concept of fit is a useful one, it lacks the precise definition needed to test and recognize whether an organization has it or not.

This shows that researchers do not distinguish between the different forms of fit that can be used, including the implications of their choice on theory building and testing (e.g. Gerdin & Greve, 2004; Schoonhoven, 1981; Venkatraman, 1989).

Drazin and Van de Ven (1985) argue further that different forms of fit across different conditions are very helpful for translating the inconsistent results of contingency theory. Therefore, they recommended that contingency studies should be conducted by different approaches of fit to allow a comparative assessment of these fits, because this will lead to complementary results and give a clearer picture about the relationship among context variables, organisational structure and organisational performance than a single approach alone. On the other hand, since several of the conceptualisations of fit employed appear not to be equal (Drazin & Van de Ven, 1985; Govindarajan, 1988), it seems that conflicting or supportive results should be reinterpreted

Figure 2.5 A Classificatory Framework for Mapping Different Forms of Fit Used in Research Based on Contingency Theory



This section has attempted to provide the taxonomic framework of fit and a brief description of various forms of contingency fit (see Figure 2.5).

2.6.1 Fit as Congruency or Contingency Approach

In its simplest form, contingency theory proposes that the structure of an organisation is dependent upon contextual aspects such as strategy, external environment, technology and size. According to Drazin and Van de Ven (1985) and Gerdin and Greve (2004) studies should seek to look at and resolve the relationships and interdependencies within the congruency (selection) and contingency (interaction and systems) forms of fit. Therefore, contingency theory can be divided into two approaches: the congruence approach and the contingency approach.

According to the congruence approach, the characteristics of organisational context should be taken into consideration with regard to organisational design. This means, organisational structure design is hypothesised to be the result of organisational context. This form of contingency theory assumes that organisational structure depends on context without any examination of whether this relationship affects performance. It supposes that higher effective

organisations have organisational structures that fit with their context, whereas ineffectual organisations adopt organisational structures that misfit with their context.

This approach suggests that there is a context–structure relationship in all organisations that is surviving, and by examination of this relationship can be assessed as fit (Drazin & Van de Ven, 1985). Hence, the former assumes that only the best-performing organisations survive and can therefore be observed. Venkatraman (1989) maintains that fit is an association between two related variables, without mentioning performance; for example, organisations that are working within uncertain environments would need organic structures.

However, Pennings (1987) argues that there is no difference in the match between contextual and organisational variables even in different types of effectiveness; this is considered as the key premise in the congruency approach. Drazin and Van de Ven (1985, p.516) assert that:

It is unclear whether to conclude that this research did not address contingency theory or to conclude that contingency theory operated as an untested assumption underlying this organization context-structure research.

They further argue that a contingency proposition is more complex, and assume that interaction exists between two sets of variables that predict effectiveness. In addition, several researchers (e.g. Abdel-Kader & Luther, 2008; Bouwens & Abernethy, 2000; Chenhall & Morris, 1986) have not attempted to examine the basic supposition lying on particular contingency theories; they did not focus on an analysis of organisational outcome as a result of examining the organisational context–design fit. Therefore, most researchers who adopted this approach to determine fit did not test organisational performance, nor indicate the causal impact of context on organisational structure.

Accordingly, the task of the research is to recognise the contextual factors that influence organisational structure, and to explore the character of the context of relations between the context–structures without investigating whether the performance has been affected. Although the majority of studies based on

contingency theory employ this approach of fit for its simplicity, the absence of performance in the assumption is considered as a defect, because '*signaling survival of the fittest*' is not an accurate measure of performance, but too simple an alternative (Gerdin & Greve, 2004). Therefore, the contingency approach has been developed where

a conditional association of two or more independent variables with a dependent outcome is hypothesized (Drazin & Van de Ven, 1985, p. 514).

The contingency approach, assumes that there are several levels of fit; this fit is thus understood as a positive influence on performance due to interaction between contextual variables and organisational structure. Consequently, the more or less successful combinations of context and structure will lead to high or low organisation performance, respectively. Therefore, the research task is to indicate these differences in performance regarding the interaction effects between the context and structure, and to illustrate that a higher performance is associated with a higher level of fit and vice versa.

The congruence and contingency approaches might be considered to be a pair of conflicting ideas about fit. However, Drazin and Van de Ven (1985) argue that these two states could exist in organisations as two subunits of discretion. Their argument is that an organisation normally limits the discretion of subunits by launching 'switching rules' that take contextual factors into consideration when controlling certain structures.

To sum up, studies have to follow both approaches to indicate and determine the interrelationships and interdependencies between them, as two important directions of contingency theory (Drazin & Van de Ven, 1985).

2.6.2 Fit as Interaction or Holistic Form

In the contingency approach, distinction is made between the interaction approach and holistic form. The interaction approach promotes the idea that the fit is through the interaction effect of organisational context and organisational structures on performance. This form attempts to examine the impact of

interaction pairs of variables on organisational performance; that is, the interaction between the single contingent variable and the single organisational variable is an independent variable, while an organisational performance is a dependent variable. Drazin and Van de Ven (1985) symbolised this interaction as an effect of interaction between weather conditions (sun and rain) and soil on agricultural crops, and how sun, rain and soil nutrients affect each other. This approach considers that the relationship lies in the linking interactions among sun, rain and soil nutrients.

Therefore, it does not focus on possible reasons and effects between organisational context and design, but rather on the dependence of organisational performance on the interaction of the organisation's structure with its context. In this context, Drazin and Van de Ven (1985) argue that this form does not focus much on understanding the correspondence between pairs of variables as in the selection approach but the focus here is on the result of fit on organisational performance. This form answers why the performance is different from the result of different individual pairs of interactions. Consequently, the good fit between context and organisational variable is hypothesised to increase organisational performance. For example, when environmental uncertainty is high, sophistication of MA information will be required, whereas when environmental uncertainty is low, a traditional or less sophisticated MAS would be adequate to lead to high performance (Gul, 1991). Thus, this form is adequate to determine 'bivariate' fit; it seeks to examine how a single contextual factor and a single structural characteristic interact to explain performance. According to this form, the focus here is on the dominant factor that has the greatest impact on performance. Moreover, this form attempts to reduce the number of organisational context variables to only one and organisational structures to a series of context–design relationships, and then to examine how organisational performance is influenced by the interaction between these pairs of factors.

The holistic form is mainly based on the equifinality concept. It is adapted to focus on patterns of contingent factors, organisational dimensions (multiple contingent factors and multiple organisational dimensions) and organisational

performance (Drazin & Van de Ven, 1985). It is built on the assumption of one best solution implicit in the selection and interaction approaches to fit. Rather than assuming that there are unique structure solutions for given levels of context, the holistic approach recognises that multiple, equally effective alternatives may exist.

According to this form, several contextual and structural variables are tested all together simultaneously so that the relationships between them can be recognised (Drazin & Van de Ven, 1985). Several researchers state that the importance of this approach comes from its ability to answer those questions that remain unanswered on adoption of the interaction approach to fit (Drazin & Van de Ven, 1985; Galunic & Eisenhart, 1994; Gresov & Drazin, 1997; Miller, 1981, 1987). In this context, Child (1975, p. 175) comments:

What happens when a configuration of different contingencies are found, each having distinctive implications for organisational design.

This approach alleges that there are two choices facing holistic designers. First, choose the organisational structure and practices that suit the cluster of contingency factors facing the organisation. Second, develop the structure and processes that are internal contextual variables, multiple structural variables and multiple performance variables in future contingency research.

Miller and Friesen (1984) pointed out that although it seems there is an unlimited number of possible combinations, according to the theory, most organisations have only a limited set of system conditions that can be assigned. Consequently, Drazin and Van de Ven (1985, p. 522) argue that the task of studies where the holistic form is adopted is:

to identify the feasible set of organisational structures and processes that are effective for different context configurations and to understand which patterns of organisational structure and process are internally consistent and inconsistent.

In addition, as argued by Miller (1986) and Gerdin and Greve (2004), gradual changes in the structure are averted, as, according to Miller (1986, p. 236), they

will often destroy the complementarities among many elements of configuration.

The primary difference between the interaction and holistic forms of fit is in their dominant modes of enquiry (Meyer, Tsui, & Hinings, 1993). Interaction research is distinguished as reductionism whereas holistic research is characterised as a wide view.

Drazin and Van de Ven's (1985) comparison between the findings of interaction and holistic approaches to fit can be helpful. However, it is expected that the interaction approach is not able to expose the impact of fit that is detected by a holistic approach; so both approaches should be conducted and the attained results compared. If the results are inconsistent – for example if the results of the interaction form are found to be insignificant, while they are found to be significant by the holistic approach – this may mean that fit arises at deviation level from many factors rather from any single factor alone. Therefore, these approaches result in different views about what forms fit and how fit is managed. Govindarajan (1988, p. 835)

chose to use bivariate as well as systemic interactions since, as Drazin and Van de Ven (1985) argued, those two approaches provide both unique and complementary information. Exclusive reliance on either approach is likely to result in loss of information.

2.6.3 Fit as Moderation or Mediation Model

The moderation form adopts the idea of explanation/expectation difference in a dependent variable (for example, performance) in terms of co-variation between the independent variables (for example organisation size) and the moderator variables (e.g. MAS) (Umanath, 2003). It is supposed that the impact on the dependent variable by an independent variable is dependent on the level of another variable, the so-called moderator (Gerdin & Greve, 2004). Therefore, the fit between the independent variable and the moderator plays a major role in the determination of the dependent variable. Studies invoke this model when the underlying theory specifies that the influence of the independent variable (e.g. condition of external environment) varies across the different levels of the moderator (e.g. MAS) (Venkatraman, 1989). In this context, Schoonhoven (1981, p. 351) states that:

When contingency theorists assert that there is a relationship between two variables ... which predicts a third variable,... they are stating that an interaction exists between the first two variables.

The suggestion here is that the impact arises as a result of the interaction between, for example, the condition of the external environment and the MAS effects on the performance of MCS. The assumption is that the condition of the external environment and MAS are independent of each other, i.e. the MAS could be used broadly or narrowly regardless of the condition of the external environment. A third new effect is created by the interaction effect between these two independent variables, which is absent in either condition of external environment and MAPS individually (Umanath, 2003). Similarly, Shields and Shields (1998, p. 51) indicate:

A moderator variable is defined as having nonsignificant, bivariate relationships with both the independent and dependent variables.

That is, the moderator variable should not be associated with either the independent or the dependent variable. If this condition is not achieved, the moderation form of fit is not adequate to provide a precise picture of the relationships between variables. An alternative form – a mediation form – should be appropriate for this situation.

The relationship between variables using the moderation model has been distinguished in at least two alternative ways – by strength and by form (Gerdin & Greve, 2004; Hartmann & Moers, 1999; Venkatraman, 1989). Strength reflects the predictive ability of the moderator variable (e.g. MAS) across the different levels of the independent variable (e.g. size) on the dependent variable (e.g. performance), while form concerns the effect of the moderator variable on performance across different levels of the independent variable. Both provide different theoretical meanings of fit, as they need different statistical methods to be used (Gerdin & Greve, 2004).

Regarding conceptualisation, the mediation model of fit indicates the existence of an indirect effect of an independent variable on a dependent variable through a third variable, called the mediation variable. For example, there is an intervening

(indirect) effect between size of organisation as an independent variable (antecedent variable) and an organisational performance consequent variable as a dependent variable through MAS (mediation variable). Unlike the moderation model, the mediation form permits some variables (MAS, for example) to contribute to the dependent variable (e.g. performance), as well as being dependent on other variables that are independent (e.g. size of organisation). Umanath (2003, p. 555) indicates that:

Fit as mediation portrays a transitive effect and is expressed by the functional form $Z = F(X)$ and $Y = F(Z)$ indicating the necessity for the presence of Z for transmitting the effect of X on Y.

The implication in these functions is, for example, higher environmental uncertainty, a broad MAS will be used and the broader the MAS used the higher the organisational performance. The usage of MAS is seen as the mediating effect, as environmental uncertainty does not have a direct impact on organisational performance; however, environmental uncertainty does influence the usage of MAPS and the usage of MAPS in turn influences organisational performance. However, Venkatraman (1989) and Umanath (2003) indicate that functional fit is considered as indirect, lacking accuracy, particularly in case of more than two independent variables being included.

Although both the moderation model, depicted as co-variation effect, and the mediation form, depicted as transitive effect, represent different theoretical connotations, they are of value. They may both be valid, but in specific conditions each situation requires a specific model (moderation or mediation) to reflect the true picture about this situation. In general, the moderation form identifies the varying impact of an independent variable on a dependent variable as a function of the moderating variable, whereas the mediation form identifies the presence of an intervening (indirect) impact between the independent variable and the dependent variable (Venkatraman, 1989).

However, Venkatraman (1989, p. 429) points out that:

The functional form of fit is, viewed simply as indirect effects, less precise than the moderation perspective (strength, form, quadratic

effects, etc.). Moreover, more than two variables can be incorporated within this perspective, thus reducing the level of precision that can be reflected in specifying the functional form of fit.

On the other hand, the traditional objection to the moderation form is the alleged problem of the hypothesis of independence between contingent variables such as strategy and size of organisation and MAS (as moderator variable), which is actually incorrect; hence they are associated. Consequently, the claim that a new impact arises as a result of the interaction between contingent variables and MAS as a key assumption of this form is incorrect.

Therefore, it is argued that it is helpful for understanding and building the theory if more than one model is used in order to allow several comparisons and draw similarities and differences between the results. In addition, for a particular study stream, using investigative perspectives that are less accurate in indicating the functional form of fit may now be more adequate, but as the study stream matures, using confirmatory perspectives would be more adequate (Govindarajan, 1988; Umanath, 2003; Venkatraman, 1989).

2.7 Limitations of Contingency Theory

Although a large number of studies have adopted contingency theory and significant results have been achieved by these studies, as with any theory describing social behaviour, this theory per se has some limitations and thus there are some limitations of the studies that adopted it. These limitations can be classified into three axes. The first axis concerns its basic underlying theoretical framework, the second axis refers to limitations on the theoretical structure and the listing and crude classification of variables and the third axis relates to issues regarding how it has been applied and its empirical testing.

2.7.1 Limitations of Underlying Theoretical Framework

Theoretically, the contingency approach is situated between two extreme approaches, the situation-specific and the universalistic approach (Fisher, 1995). The situation-specific approach depends on the fact that the factors affecting each organisation are unique; whereas universalistic approach depends on which

optimal organisational system holds to some degree in all settings and organisations. This implies that in case of the situation-specific approach the generalisation of the best design system setting is not allowable, while in the universalistic approach the generalisation is absolute. According to the contingency approach, the level of generalisation depends on a number of contingent factors and their effects, but these factors and their effects are not well defined. Therefore, the criticism here is aimed at the extent to which the generalisation sets one situation against another.

Donaldson (1996) also argues that contingency theory was criticised by the organisational systematic approach saying that the business environments/ organisations have specific relationships and that generalisation of the link among context and management form cannot be made across different kinds. Additionally, as the fit among contingent factors and the internal characteristics of an organisation such as its structures, human resource management systems and performance measurement systems is different from one organisation/ situation to another, it may be different in the same organisation if any changes occur in this organisation. According to contingency theory, good fit or high level of fit will lead to high performance and misfit will lead to lower organisational performance (Burns & Stalker, 1961; Thompson, 1967; Woodward, 1965). Therefore, an organisation needs to make some changes when it moves by changing its characteristics from those that misfit the contingency to those that fit it, in line with the change which is adaptive and which restores performance. Practically, however, these changes may be difficult to conduct and may result in a lack of organisational stability which has a negative effect on performance.

2.7.2 Limitations Regarding Theoretical Structure

Contingency theory has been criticised regarding the theoretical structure and the listing and crude classification of variables. Fisher (1995) points out that the major limitation of the studies based on contingency theory is that they only examine single relationships between contingent factors and management accounting attributes, rather than examining multiple contingent factors and multiple management accounting attributes. Additionally, Otley (1980) states that

there is no one study whose framework includes all four stages (i.e. contingent variables, organisational design, type of accounting information system and organisational effectiveness). In other words, these studies focus on the relationship between only two stages, namely, studying the relationship between the contingent factors and the accounting information system design, without considering the organisational design as an intervening variable, and organisational effectiveness, or focusing on the relationship between three stages – contingent factors, accounting information system design and organisational effectiveness – without considering the organisational structure as an intervening factor. Moreover, Otley (1980), Fisher (1995) and Chanhall (2003) argue that there is a misconception of the meanings of management control system (MCS) and management accounting system (MAS), for example some studies use MAS as a synonym for management control system. It means that these studies do not distinguish between them, despite the fact that, MAS is only one part of a MCS. In this context, Chanhall (2003, p. 129) indicates that:

The terms management accounting (MA), management accounting systems (MAS), management control systems (MCS), and organizational controls (OC) are sometimes used interchangeably. MA refers to a collection of practices such as budgeting or product costing, while MAS refers to the systematic use of MA to achieve some goal. MCS is a broader term that encompasses MAS and also includes other controls such as personal or clan controls. OC is sometimes used to refer to controls built into activities and processes such as statistical quality control, just-in-time management.

Longenecker and Pringle (1978) argue that although contingency theory includes a listing and crude classification of variables, the important thing is its statement of the structure of the relationship between these variables. Hence, the interaction between situational, management and performance criteria variables for generating a system performance does not provide anything useful about the real relationship between these variables.

2.7.3 Limitations Relating to How Contingency Theory Has Been Applied and Tested

As mentioned earlier, there are many different approaches to fit of contingency theory that can be used, and many researchers are not aware of the implications of

these different approaches or the difficulties in relating these approaches to each other (Gerdin & Greve, 2004, 2008; Schoonhoven, 1981; Venkatraman, 1989). Therefore, the conceptualisations of fit used do not appear to be comparable (Drazin & Van de Ven, 1985; Govindarajan, 1988), so there is a lack of correspondence between the way in which hypotheses are formulated and then examined (Venkatraman, 1989). Hence, it seems that contradictory or supportive results may need to be re-explained. In this context Gerdin & Greve (2004, p. 323) point out that:

Some researchers claim that their findings are contradictory when this is not necessarily the case, while others incorrectly argue that their results are strongly supported by former studies.

In addition, contingency theory has been criticised regarding how individual statistical techniques have been used in contingency-oriented MAS research (Dunk, 2003; Gerdin, 2005; Hartmann & Moers, 1999, 2003). Gerdin and Greve (2008) argue that each model of interaction effects between context and management accounting requires a specific statistical technique. This means that some techniques are appropriate for a general prediction of interaction effects, while these techniques are not appropriate for specifying a more precise functional interaction form. For example, Hartmann and Moers (1999) pointed out that moderated regression analysis with interaction effects has been inadequately applied for testing the effect of contingent variables on MAS design and implementation such as budgeting. They further argued that such an inadequate analysis applying such a statistical technique (i.e. multiple regression analysis) will have a significant effect on the interpretation and conclusions of budgetary researches. Therefore, they summarized that (1999, p. 307):

The evidence in the previous sections leads to the initial conclusion that the use of MRA (moderated regression analysis) in the papers reviewed is seriously flawed, caused by the uncritical application of this statistical technique and too little knowledge of its specific requirements and underlying assumptions.

2.8 Summary and Conclusion

According to contingency theory, organisations are considered as open systems: they swap information, technology techniques and other things that are necessary for survival within their external environment. For Example, Rayburn and Rayburn (1991) state that it is very important that the contingency theory framework takes into consideration the effect of the conditions of the external environment, which need to be measured and examined.

Furthermore, contingency theory provides researchers of MCS considerable inspiration through development of the central issue – the fact that tight control systems are needed in case of simple technology in centralised organisations facing a stable task environment; and vice versa – extensive control systems need to be adopted by decentralised organisations facing dynamic, hostile and heterogeneous task environments and complex technology (Covaleski *et al.*, 1996). This implies that contingency theory attempts to identify the optimal structure of control for each different operating condition, and then provide a more holistic approach to MAS design (Rayburn & Rayburn, 1991).

A contingency theory of management accounting has a great deal of appeal. The application of this theory for MAS has traditionally being well recognised as having different prominent formulations. Otley (1980) pointed out that a good understanding and recognition of the effect of various contingent factors on MCS depends on well-defined factors addressed in the contingency framework and then on how it is included in its wider context of the organisational control system. It emphasises that an organisation's performance is the result of the fit among the contingencies. Hence, it has the ability to reorganise, accept and rearrange new contingencies, whatever the type of organisation and its operating conditions (Child, 1975).

Finally, there is an argument that contingency theory has been applied with different forms of fit; however, most researchers have not always been conscious of the implications of their choice on theory building and testing (Gerdin & Greve, 2004, 2008; Schoonhoven, 1981; Venkatraman, 1989). Consequently, it is

recommended that researchers should be careful when choosing the valid form of fit, because there may be only one form valid for a particular condition which can provide the true picture (Gerdin & Greve, 2004).

In summary, it can be concluded that much attention needs to be paid towards the development of a contingency theory of management accounting, including some minimal requirements such as the methodologies used to empirically test the hypotheses.

Thus, in the next chapter the study attempts to pay attention to previous concepts and criticisms of contingency theory, through a review of previous empirical contingency studies. The aim is to understand the strengths and weaknesses of these studies, particularly the similarities and differences between them as a basis for building up the study framework in the following chapter.

Chapter Three

A Review of Contingency Theory-Based Studies of Management Accounting Practice

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3.1 Introduction

Although the contingency theory literature includes many studies that have investigated the influence of contingent factors on the design and use of MAS, there is still controversy over determining the appropriate dimensions of each factor and their impact on MAS. This chapter seeks to review the empirical literature on management accounting that is based on contingency theory, and evaluates this literature in terms of the main contingent variables and the themes and tenets of the contingency theory model discussed in the preceding chapter.

3.2 Overview of Contingency-Based Studies of Management Accounting Practice

In the previous chapter the relevant theoretical literature on contingency theory, its factors and different concepts of fit were discussed. In this chapter, 26 studies will be reviewed. These studies have been extracted from a broad body of literature according to three criteria:

- The study concerned at least one aspect of management accounting;
- The study used contingency theory to investigate at least one contingent factor that is targeted to be examined by the current study and
- The study was published during 1980-2010.

As shown in Table 3.1 there has been a noticeable increase in the use of contingency theory in management accounting research during the past two decades. The majority of these studies were conducted in developed countries, especially Australia, only a few being conducted in developing countries (i.e. Chia, 1995; Gul & Chia, 1994; Kattan, Pike, & Tayles, 2007; Soobaroyen & Poorundersing, 2008). Additionally, apart from the studies by Chia (1995) and King, Clarkson and Wallace (2010), all studies were conducted on manufacturing organisations. The non-manufacturing studies are represented by one study on telecom organisations and one on hospital organisations. With the exception of the

four studies by Libby and Waterhouse (1996), Al-Omiri and Drury (2007), Abdel-Kader and Luther (2008) and King *et al.* (2010), the studies examined the impact of no more than three variables.

Table 3.1 Summary of Studies of Contingency-Based Empirical Studies of Management Accounting Practice

	Author/s and year	Country	Contingent factor	Sample size and industry	Methods of data collection
1	Gordon and Narayanan (1984)	USA	PEU and Organisational structure	34, MNFC	SIN VW
2	Govindarajan (1984)	USA	PEU	58, MNFC/NMNFC	QUSNR
3	Chenhall and Morris (1986)	Australia	PEU, Organisational structure and interdependence	68, MNFC	QUSNR
4	Govindarajan (1988)	USA	Strategy and Organisational structure	24, MNFC	QUSNR
5	Gul (1991)	Australia	PEU	42, MNFC	QUSNR
6	Kaplan and Mackey (1992)	Canada	Production process, Work-in-process inventory and Accounting procedures	47, MNFC	QUSNR
7	Abernethy and Guthrie (1994)	Australia	Strategy	49, MNFC	QUSNR
8	Gul and Chia (1994)	Singapore	PEU and Organisational structure	48, MNFC/NMNFC	QUSNR
9	Abernethy and Lillis (1995)	Australia	Strategy	42, MNFC	SIN VW
10	Chia (1995)	Singapore	Organisational structure	NMNFC	QUSNR
11	Libby and Waterhouse(1996)	Canada	Competition, Organisational structure, Size and Greater organizational capacity to learn	24, MNFC	QUSNR
12	Chong and Chong (1997)	Australia	PEU and Strategy	62, MNFC	QUSNR
13	Perera and Poole (1997)	Australia	Strategy	105, MNFC	QUSNR
14	Chenhall and Langfield-Smith (1998b)	Australia	Strategy and Management techniques	78, MNFC	QUSNR
15	Bouwens and Abernethy (2000)	Netherlands	Strategy	85, MNFC/NMNFC	QUSNR
16	Nicolaou (2000)	USA	Organisational structure, Interorganizational dependence, Information interdependence	120, MNFC/NMNFC	QUSNR
17	Hoque, Mia, and Alam (2001)	New Zealand	Competition and Computer-aided manufacturing	71, MNFC	QUSNR
18	Baines and Langfield-Smith (2003)	Australia	Competition, Strategy and technology	141, MNFC	QUSNR
19	Hoque (2004)	New Zealand	PEU and Strategy	52, MNFC	QUSNR
20	Hoque (2005)	New Zealand	PEU	52, MNFC	QUSNR
21	Al-Omiri and Drury (2007)	UK	Cost information, Product diversity, Cost structure, Competitive environment, Size, Information technology, innovative MA techniques, Lean production techniques, sector	176, MNFC/NMNFC	QUSNR
22	Hyvönen (2007)	Finland.	Strategy information technology	51, MNFC	QUSNR
23	Kattan <i>et al.</i> (2007)	Palestine	PEU	MNFC	CSTDY
24	Abdel-Kader and Luther (2008)	UK	PEU, Customers' power, strategy, structure, size, AMT, TQM JIT, and product perishability	245, MNFC	QUSNR
25	Soobaroyen and Poorundersing (2008)	Mauritius	Task uncertainty and Organisational structure	63, MNFC	QUSNR
26	King <i>et al.</i> (2010)	Australia	Size, Organisational structure, Strategy and PEU	144, NMNFC	QUSNR

PEU: perceived environmental uncertainty; MNFC: manufacturing; NMNFC: non-manufacturing; QUSNR, questionnaire; SIN VW semi- structured interviews; CSTDY, case study.

Given that the studies in Table 3.1 vary in many ways, making a direct comparison is very difficult. Instead, each of the contingent variables with which the studies were concerned, i.e. external environment, business strategy, organisational structure, technology, and characteristics of organisation such as the type of industry and the age of organisation will be reviewed and discussed according to the following five dimensions:

- ❖ How the contingent factor was perceived and measured;
- ❖ How the contingency theory was applied to investigate the factor;
- ❖ Which parts of MAS were examined;
- ❖ How the outcome (performance) was measured if it was included; and
- ❖ Discussion of the results.

3.3 Empirical Studies of External Environment

Although accounting researchers have been adopting contingency theory since the late 1970s, empirical studies concerned with the external environment did not appear until the mid 1980s (Chenhall & Morris, 1986; Gordon & Narayanan, 1984; Govindarajan, 1984). The common status of the early studies was concerned with examining the relationship between one or two contingent factors and the specific terms of management accounting. However, they were the basis for later empirical studies for applying contingency theory.

This section presents a review of 13 existing empirical studies that examine the relationship between external environment and MAS. These studies are by Gordon and Narayanan (1984), Govindarajan (1984), Chenhall and Morris (1986), Gul (1991), Gul and Chia (1994), Libby and Waterhouse (1996), Chong and Chong (1997), Hoque *et al.*, (2001), Hoque (2004), Hoque (2005), Kattan *et al.* (2007), Abdel-Kader and Luther (2008) and King *et al.* (2010). They will be reviewed according to the five dimensions mentioned earlier (see section 3.2).

3.3.1 How the External Environment Was Perceived and Measured

As stated earlier, there are many dimensions or characteristics of the external environment. Chenhall (2003) argues that a clear specification of the environmental dimensions of interest is required, as different theories are required to consider the effects of different dimensions. The researcher also added that distinction between dimensions within the external environment, such as uncertainty, hostility and complexity, are important to MCS design.

The studies being reviewed here have all been concerned with PEU, as an environmental condition, except Libby and Waterhouse (1996) and Hoque *et al.* (2001) who were concerned with the condition of market competition. Moreover, with the exception of Chenhall and Morris (1986) and Kattan *et al.* (2007), this factor was measured based on the work of Khandawalla (1972) and Miles and Snow (1978) which is more specifically focused on the external condition. In this perspective, the uncertainty situation captures the strength of competition, the dynamic and unpredictable nature of the external environment, as well as elements of change. These studies consider PEU as unable to forecast the future as a result of the change of various variables within the context of their business units and the instability of the different features of their organisation's industrial, economic, technological, competitive and customer environment. They comprised factors including suppliers' actions, competitors' actions, customer demand for existing and new products, the financial/ capital market, government regulations, laws and policies, and labour union actions.

There is no consensus among researchers as to how to measure uncertainty. Govindarajan (1984), Gul (1991), Gul and Chia (1994), Hoque (2004, 2005) and Abdel-Kader and Luther (2008) have attempted to examine the decision makers' perceptions of uncertainty, rather than the actual uncertainty that is present in the environment, which influence the decisions that managers make in response to their respective organisations' operating environments. Other authors (i.e. Gordon and Narayanan (1984), Libby and Waterhouse (1996), Hoque *et al.* (2001) Chong and Chong (1997) and King *et al.* (2010)) consider uncertainty as the intensity of competition, the dynamic and unpredictable nature of the external environment,

and elements of change. Chenhall and Morris (1986) used a measure of uncertainty based on Duncan's study (1972) which considered the lack of information on environmental factors. This made it difficult to assign probabilities on how the environment affects success or failure, without knowing the outcome of decisions on how the organisation would lose if the decision was incorrect. Kattan *et al.*'s (2007) study sees environmental uncertainty stemming from changes in the political structure as a result of the political uncertainty emerging from StoneCo, which was established in 1984, thus precipitating changes in markets and their structures. Companies operating in those markets are influenced by the need to react to such changes.

3.3.2 How the Contingency Theory Was Applied

In light of the discussion in Chapter 2, contingency theory can be applied using different ways. The researchers should be knowledgeable of the application mechanism for each approach, in order to realise the right statistical tests for their choice (Drazin & Van de Ven, 1985; Schoonhoven, 1981). Thus a good understanding of the application of contingency theory will direct to more reliable research results and explain much of the vagueness in contingency research. In this section, these studies are described and classified according to the conceptualisations of fit that were provided in the previous chapter.

Half of these studies (Abdel-Kader & Luther, 2008; Chenhall & Morris, 1986; Gordon & Narayanan, 1984; Hoque *et al.*, 2001; Kattan *et al.*, 2007; Libby & Waterhouse, 1996) represent a congruency approach, in that fit is depicted as a continuum with an absence of performance variable. These studies assumed that high-performing organisations survive to be considered and the study task is thereby reduced to exploring what form the relationships linking PEU and MAS take. The other half of these studies used a contingency approach. Govindarajan (1984), Gul (1991), Chong and Chong (1997), Hoque (2004) and Hoque (2005) used contingency with interaction form, in that fit is depicted as the interaction between a single contingent variable and a single organisational variable (as an independent variable, while organisational performance is a dependent variable).

Table 3.2 Summary of Studies of Contingency Application with External Environment

ON	Study	Concept of fit applied by the study			
		Congruency	Contingency		
			Holistic	Interaction	
				Mediation	Moderation
1	Gordon and Narayanan (1984)	√			
2	Govindarajan (1984)	√			√
3	Chenhall and Morris (1986)	√			
4	Gul (1991)				√
5	Gul and Chia (1994)		√		
6	Libby and Waterhouse (1996)	√			
7	Chong and Chong (1997)			√	
8	Hoque <i>et al.</i> (2001)	√			
9	Hoque (2004)			√	
10	Hoque (2005)				√
11	Kattan <i>et al.</i> (2007)	√			
12	Abdel-Kader and Luther (2008)	√			
13	King <i>et al.</i> (2010)	√	√		

Three of the studies that adopted the interaction form use MAS as moderator variable for an explanation/expectation of the difference in organisational performance through the level of fit between PEU and MAS (Govindarajan, 1984; Gul, 1991; Hoque, 2005); whereas the mediation model of fit was applied in the studies by Chong and Chong (1997) and Hoque (2004), which examined the existence of the indirect effect of PEU on organisational performance through MAS. Only one of these studies adopting the contingency approach applied it using the holistic form. It focused on patterns of effects of PEU, decentralisation and MAS information characteristics on managerial performance (Gul & Chia, 1994). In addition, King *et al.* (2010) used both the congruency approach and the contingency approach; they applied the contingency approach in a holistic form.

3.3.3 How MAS Was Examined

MAS are often the most important formal sources of information in organisations. They should be designed to provide all levels of management with timely and reasonably accurate information to help them make decisions that are in

agreement with their organisation's objectives. Chenhall (2003) argues that MAS has developed over time from a system focusing on the provision of more formal, financially quantifiable information to assist managerial decision making to one that embraces a much broader scope of information. This includes external information related to markets, customers, competitors, and non-financial information related to production processes, predictive information and a broad array of decision support mechanisms, and informal personal and social controls.

Contingency-based research has focused on a variety of aspects of MA. Some studies focused on dimensions of information such as scope, timeliness and aggregations, others focused on MA techniques, whether traditional techniques or modern, such as ABS or BSC. Both types of studies are required to investigate the impact of relationships between these terms and the external environment on organisational performance.

As a result, the thirteen studies were divided into four types; five of them concerned the characteristics of information: Gordon and Narayanan (1984), Chenhall and Morris (1986), Gul (1991), Gul and Chia (1994) and Chong and Chong (1997); while four studies focused on performance measure (Govindarajan, 1984; Hoque, 2004, 2005; Hoque et al., 2001), with just one study for each these objectives: MAS change (Libby & Waterhouse, 1996), budgeting, planning and strategic decision making and non-financial measures (Kattan et al., 2007) and levels of sophistication relating to each of International Federation of Accountants' (IFAC) stages (Abdel-Kader & Luther, 2008). King *et al.* (2010) focused on the adoption and extent of use of written budgets.

The studies concerned with the characteristics of information can be classified into two groups. The first group includes only Gordon and Narayanan's (1984) study; this study examined the importance of three kinds of information relating to externally oriented, non-financially oriented and ex ante oriented information for making various organisational decisions. The second group is all other studies that have used the dimensions of information developed by Chenhall and Morris (1986) (i.e. scope, timely, aggregation and integration). However, only two of them used all these dimensions (Chenhall & Morris, 1986; Gul, 1991), one used

scope and aggregation of information (Gul & Chia, 1994), while the fourth one used only the scope of information (Chong & Chong, 1997).

Performance measurement was concerned with using different dimensions. Govindarajan, (1984) used performance evaluation style as one aspect of MAS, measuring it as a continuum variable, whether the superiors exclusively used subjective judgement in evaluating their subordinates' performance and in deciding their bonus or whether they evaluated them solely on meeting various levels of financial performance, or whether their bonuses were decided partly in a subjective manner and partly formula based; while, Hoque *et al.* (2001) used multiple performance measures using the twenty items comprising four dimensions: financial perspective, internal business perspective, innovation and learning perspective, and customer perspective. They argued that these dimensions were consistent with the Kaplan and Norton (1992) balanced scorecard approach. Each dimension included multiple items. According to Kaplan and Norton (1992), these specific items clearly integrate the underlying strategy of an organisation. In the study by Hoque *et al.* (2001), the respondents were asked to indicate the extent of their organisation's use of each indicator across the four dimensions for assessing business unit performance. Hoque (2004; 2005) examined the usage of non-financial performance measures, containing 13 items similar to those developed by Hoque and James (2000), along the lines of Kaplan and Norton's (1992) three non-financial perspectives: customer, internal business processes, and learning and growth. The customer perspectives include the following five items: market share, customer satisfaction survey, on time delivery, customer response time and warranty repair cost. The internal business process perspective included the following four items: material and labour efficiency variance, process improvement and re-engineering, new product introduction, and long-term relations with suppliers, while the learning and growth perspective included the following four items: staff development and training, workplace relations, employee satisfaction, and employee health and safety.

Libby and Waterhouse (1996) focused on a variety of aspects of MAS, in which the number of MAS changes was measured as the amount of the reported number of changes within the period 1991–1993. A list of 23 different items of MAS included five main types – planning, controlling, costing, directing and decision making – which were provided to the respondents to indicate the changes that had occurred in any of these systems during the period 1991–1993. Kattan *et al.*'s (2007) study investigated the implementation of MAPs at StoneCo period in Palestine. It considered the budgeting systems, planning and strategic decision making and use of non-financial measures and reporting systems used within StoneCo. The initial area of interest was to study how management accounting was involved in the process of change; namely, whether it resulted from internal changes or the effect of the changes to the external environment over the past ten years on management accounting and control systems used within the company.

Abdel-Kader and Luther (2008) examined the sophistication levels of MAPs. They adopted the IFAC's MA development model with four stages of sophistication. The primary focus of the first stage was on internal matters, especially production capacity. In the second stage the focus shifted to the provision of information for planning and control purposes. The third stage of MA concerned shifting towards the reduction of waste in resources used in business processes; whereas, the fourth stage of evolution shifted to the generation or creation of value through the effective use of resources. Abdel-Kader and Luther considered each stage is more sophisticated than its predecessor. This implies that MAPs applied in the first stage are the least sophisticated, while MAPs applied in the fourth stage are the most sophisticated.

Finally, King *et al.* (2010) investigated the relationship between contextual factors identified from contingency-based research, the adoption and extent of use of budgets, and business performance within the Australian primary healthcare setting. The study aimed to provide evidence linking contingency factors, adoption and extent of budget use, and business performance. It reported that factors identified by contingency-based research are important for predicting the adoption and extent of budget use. Specifically, it found that using written budgets

implements operating budgets to a greater extent if they are more likely to employ a cost leadership strategy. In addition, the study provided evidence that an organisation's performance is positively associated with the degree of fit between the extent of budget use and its contingent factors.

3.3.4 How the Outcome Was Measured

As mentioned earlier, contingency theory can be applied as a congruency approach or as a contingency approach. Using the contingency approach means that performance is included in a relationship model. Chenhall (2003) argues that the outcomes of a management control system may be divided into three dimensions: namely, usefulness of the MCS, behavioural and organisational outcomes. He states that these dimensions have an implied connection between them. If the MCS is useful, then they are expected to be used and give satisfaction to those who can presumably approach their jobs with improved information. Therefore, these individuals take improved decisions and will achieve their organisations' objectives.

In light of the previous reviewed studies, it is found there are two methods to measure the outcome. The first method was followed by Govindarajan (1984) and subsequently adopted by Chong and Chong (1997), Hoque (2004; 2005) and King *et al.* (2010); this method is concerned with the organisations' performance or goals which include 12 items: sales growth rate, market share, operating profits, profit to sales ratio, cash flow from operations, return on investment, new product development, market development, research and development, cost reduction programmes, personnel development and political/public affairs. King *et al.* (2010) adopted a subjective measure of performance that was originally developed by Govindarajan and Gupta (1985). They viewed the economic/financial aspect as being of primary importance, given the profit orientation of their sample businesses, which captures the respondent's perceptions of their businesses' performance relative to the competition, using six questionnaire items. They asked the respondents to describe their response to these statements over the previous 3-year period: Compared to key competitors (Is more competitive, Has more patients, Is growing faster, Is more profitable, Is

more innovative, Has more doctors?); whereas the second method as used by Gul (1991) and Gul and Chia (1994) depends on self-assessment processes whereby individuals provide an indication of their performance, or their organisational unit, across a range of potentially important managerial processes.

3.3.5 Discussion of the Results

According to the above discussion of the four criteria, there is no single study that completely matches the others in term of these criteria. It is argued that conceptualisations of fit used do not appear to be comparable (Drazin & Van de Ven, 1985; Venkatraman, 1989), so there is a lack of correspondence between the way in which hypotheses are formulated and then examined (Venkatraman, 1989). Therefore, the results that emerged from the different models of fit may be different.

These findings indicate a positive association among external environmental uncertainty, broadly based MCS including timeliness, scope, aggregation and integration, non-financial and multiple performance measures and organisational outcomes. On the other hand, it is worth mentioning that Hoque conducted two studies (2004 and 2005), using the same sample, instrument, MAS aspects (non-financial measures), external environment measurement and implementation of contingency theory, except that in the 2005 study he considered non-financial measures as the moderator variable using multiple regression rather than the mediator variable using path analytical as he did in the 2004 study. Unexpectedly, the results of both studies were not consistent. In the 2004 study he found no evidence of a significant relationship between environmental uncertainty and performance through management's use of non-financial performance measures. In the 2005 study he reported a positive and significant association between managers who use non-financial measures and environmental uncertainty to produce a positive impact on performance. Both these results give strong support to the previous discussion that each approach of fit of contingency theory could provide different results. It is now appropriate to recall what Gerdin and Greve (2004) said, that both the moderation model and the mediation model may be valid but, in a particular condition, only one model can provide the true picture.

The important question that needs answering here in the cases of Hoque (2004 and 2005) is which one gives a true picture – is the moderation model right or the mediation model, and how and why? These issues would need an intensive study to focus on them to address the assumptions of different approaches, forms and models of contingency theory to be clear and useful.

Table 3.3 Summary of External Environment Studies

Authors, year and country	Variable measured	Characteristics of MAS	Form of fit & statistical technique	Performance measured	Key findings
Gordon and Narayanan 1984 US	Environmental uncertainty is measured to tap respondents' perceptions about the predictability and stability in various aspects of their organisation's industrial, economic, technological, competitive and customer environment.	External, non-financial and future oriented information.	Congruency approach, using correlation technique.		The results show strong correlation between PEU and perceived usefulness of MAS characteristics. They found that as PEU increases, organisations tend to seek external, non-financial and ex ante information in addition to other types of information.
Govindaraja 1984 USA	Using instrument developed by Mills and Snow (1978). Respondents were asked how predictable or unpredictable each of the following was: competitors' actions, manufacturing technology, product attributes/design, market demand, raw material availability, raw material prices, government regulation and labour union action.	Styles of performance evaluation as continuous variable.	Congruency approach and Contingency approach, using correlation technique.	Performance measured by self-ratings of 12 items: sales growing, market share, operating profits, profit margins, cash flow, and return on investment, new product, market development, cost reduction, personnel development and political/public affairs.	Positive relationship between PEU and uses a more subjective performance evaluation. Stronger fit between PEU and performance evaluation style would be associated with higher business unit performance.
Caenhall and Morris 1986 Australia	Using instrument developed by Duncan 1972, focusing on lack of information, including 12 items.	Information characteristics (scope, timeliness, aggregation and integration.	Congruency approach, configuration form and using decentralisation as mediator variable. Using regression and path analysis.		Direct association between PEU and scope, timely information. Indirect association with aggregation, no significant indirect association between PEU and scope of information.
Gul 1991 Australia	Using instrument developed by Mills and Snow (1978), and adoption of the eight items of Govindarajan, (1984).	Information Characteristics (scope, timeliness, aggregation and integration.	Congruency approach of interaction form, moderation model, using multiple regression technique.	Managers' self-rating their performance for eight managerial activities: planning, investigating, co-ordinating, evaluating, supervising, staffing, negotiating and representing, and one overall performance rating.	The effects of MAS on performance are dependent of environmental uncertainty. Under high levels of uncertainty, sophisticated MAS has a positive effect on performance but under low levels it has a negative effect.

Gul and Chia 1994 Singapore	Using instrument developed by Mills and Snow (1978), and adoption of the eight items of Govindarajan, (1984).	Information Characteristics (scope and aggregation).	Contingency approach, of holistic form, using multiple regression technique.	Subjective measure of managerial performance developed by Mahoney, Jerdee, & Carroll (1963), Govindarajan, (1986): Investigating, coordinating, evaluating, supervising, staffing, negotiating, representing.	Decentralisation and the availability of broad scope and aggregation information are associated with higher managerial performance under high PEU. Under low PEU, decentralisation and the availability of MAS of broad scope and aggregation information are associated with lower managerial performance.
Libby and Waterhouse 1996 Canada	Using competitive pressure, it consists of five questions rating the intensity of competition for raw materials, technical personnel, selling and distribution, quality and variety of products, and price.	Extent of changes in MAS.	Congruency approach, using multiple regression technique.		Organisations operating in more highly competitive environments tend to have a greater number of MAS in use.
Chong and Chong 1997 Australia	Using instrument developed by Gordon and Narayanan (1984).	Scope information	Contingency approach, of interaction form, mediation model, using path analytic technique.	Performance measured by a self-rating scale using an instrument originally developed by Govindarajan (1984).	Significant positive direct effect of PEU on MAS and significant indirect effect of (strategy business units) SBU strategy and PEU on SBU performance through the extent to which managers use broad scope information, PEU are important antecedents of MAS design, and that broad scope information is an important antecedent of SBU performance.
Hoque, Mia and Alam 2001 New Zealand	Using 6 items to indicate the intensity of market competition: (1) price, (2) new product development, (3) marketing or distribution channels, (4) market (revenue) share, (5) competitors' actions, and (6) number of competitors in the market.	Multiple performance measures usage, using 4 dimensions perspectives: financial, internal business, innovation and learning and customer	Congruency approach, using correlation and multiple regression		The results suggest that greater emphasis on multiple measures for performance evaluation is associated with businesses facing high competition
Hoque 2004 New Zealand	Developed the measurements of Gordon and Naryanan (1984), Khandwalla (1972), Govindarajan (1984), using 8 items to indicate the relative predictability of the	non-financial measures	Contingency approach, of interaction form, path analytical	Performance measured by a self-rating scale using an instrument originally developed by Govindarajan (1984).	The study finds no evidence of a significant relationship between environmental uncertainty and performance through management's use of non-financial

	firm's external environment: suppliers' actions, customer demands, tastes and preferences, market activities of competitors, deregulation & globalisation, government regulations/policies, economic environment, industrial relations, and production and information technologies.		model mediation model, using path analytic technique.		performance measures.
Hoque 2005 New Zealand	Using instrument of Hoque (2004).	Non-financial measures	Contingency approach, of interaction form, moderation model, multiple regression	It was measured by a self-rating scale using an instrument originally developed by Govindarajan (1984).	The positive and significant association between managers' use of non-financial measures and environmental uncertainty to produce a positive impact on performance.
Kattan, Pike and Tayles 2007 Palestine	Levels of politico-economic uncertainty and fluctuations.	Budgeting, Planning and strategic decision making and non-financial measures.	Congruency approach.		MAPs in StoneCo have changed over the last 10 years. Changes in MACS are attributable to various reasons. Changes in management perception of the level of uncertainty in the external environment, changes in management's response to environmental uncertainty.
Abdel-Kader and Luther 2008 UK	The predictability of firms' external environments, using 13 items including suppliers, competitors, customers and governmental/European Union regulatory agencies.	38 MAPs into one of four levels of sophistication relating to each of IFAC's four stages.	Congruency approach, using kruskal-wallis one way ANOVA.		Differences in MA sophistication are significantly explained by PEU.
King, Clarkson and Wallace 2010 Australia	The study focuses on dynamic and hostility, asking questions about stable/dynamic of economic and technological environment, the ability of predict the actions of competitors, and the intense of bidding for purchases and price competition.	Using a written budget. It captures both types of budgets used and the extent of their use.	Congruency approach and Contingency approach, of holistic form, using regression.	It adopts subjective measure that captures respondent's perceptions of their business's performance relative to the competition using 6 items: Is more competitive, Has more patients, Is growing faster, Is more profitable, Is more innovative, Has more doctors.	It was found that factors identified by contingency research are useful for predicting the adoption and extent of budget use. Using written budgets implements operating budgets to a greater extent if they perceive the environment in which they operate as being more stable. Also, it provides evidence of a positive association between the extent of 'fit' and performance.

3.4 Empirical Studies of Business Strategy

Recently, MA research has paid attention to the relationship between MCS and strategy, since its importance for superior performance has been recognised, especially when the strategic typology was modified by Miles and Snow (1978). In this context, Govindarajan and Gupta (1985) and Govindarajan (1988) argue that since the 1950s the consideration of business strategy has become important, but the literature did not include any published research work studying explicitly the relationship between strategy and control systems until the 1980s (Govindarajan, 1988; Govindarajan & Gupta, 1985). However, Khandwalla (1972) examined the relationship between competition and control systems, thus indicating how dealing with competitive advantage may show the nature of an organisation's strategy.

Since then, several empirical studies pertaining to contingency theory, involving a search for systematic relationships between the specific aspects of the MCS and the organisation's business strategy, have been conducted (e.g. Govindarajan & Gupta, 1985; Khandwalla, 1972; Merchant, 1985; Simons, 1987). Nevertheless, (Langfield-Smith, 1997) argues that only limited empirical studies show an interest in this relationship. He further argues that there is a great need for carrying out further research in this field.

In this review eleven empirical studies that use contingency theory to examine the relationship between business strategy and MAS are presented. These studies have been conducted by Govindarajan (1988), Abernethy and Guthrie (1994), Abernethy and Lillis (1995), Chong and Chong (1997), Perera and Poole (1997), Chenhall and Langfield-Smith (1998a), Bouwens and Abernethy (2000), Hoque (2004), Hyvonen (2007), Abdel-Kader and Luther (2008) and King *et al.* (2010).

3.4.1 How Business Strategy Was Perceived and Measured

Based on Table (3.5), it is clear that the 11 studies were divided into three types: the first type is concerned with Miles and Snow's typology (1978), the second is concerned with Porter's (1980) typology, whilst the third includes all other different strategies.

The first type, which adopted Miles and Snow's (1978) typology, comprises the studies by Abernethy and Guthrie (1994), Chong and Chong (1997) and Hoque (2004). They developed Miles and Snow's (1978) typology, namely defender and prospector type, to study the strategy at the business unit level, providing a brief description of both strategic priorities (defender and prospector). Abernethy and Guthrie (1994) and Chong and Chong (1997) asked the respondents to select the best description representing their business unit, relative to other companies in the industry. Therefore, the sample of the study was divided into two types (i.e. defender and prospector), while Hoque (2004) asked them to indicate the degree of emphasis that their companies had given to a range of both strategy priorities over the past three years.

The second type includes Govindarajan (1988), Chenhall and Langfield-Smith (1998a), Abdel-Kader and Luther (2008) and King *et al.* (2010). Govindarajan (1988) developed an instrument based on the conceptual discussion of low-cost and differentiation strategies by Porter (1980). Govindarajan (1988) asked the respondents (general managers of strategy business units "SBUs") to position their products relative to those of leading competitors in the following six areas: product selling price, percentage of sales spent on research and development, and percentage of sales spent on marketing expenses, product quality, brand image and product features. Chenhall and Langfield-Smith (1998a) asked the respondents to indicate the emphasis that their companies had given to a range of strategic priorities by providing 11 items to determine whether the company emphasises low-cost and differentiation strategies. Abdel-Kader and Luther (2008) asked the respondents to indicate the percentage of their business units' current total sales accounted for by products representing the use of either Porter's low-cost or differentiation strategy by describing both strategies. King *et al.* (2010) measured the strategy by the response to a single question drawn from Govindarajan (1988). This question asked the respondents to indicate their belief as to the best description of the business's strategic emphasis, ranging from product differentiation to cost leadership.

The last type is concerned with other different strategies. Abernethy and Lillis' (1995) and Perera and Poole's (1997) studies are concerned with the manufacturing strategy (flexibility). This strategy reflects the organisation's ability to respond to market demands by switching from one product to another through co-ordinated policies and actions. It includes the proportion of turnover from non-standard product lines and the extent to which the manufacturing process provides flexibility to offer customers product variations and a willingness or capacity to offer product variations, while Bouwens and Abernethy (2000) examined the manufacturing strategy as customisation that can be pursued by producing output that is customised through combining standardised modules that are pre-specified by the organisation. It focuses on the extent to which a firm is willing or able to make 'customer-requested' changes. Therefore, it was measured by asking the respondents to indicate the percentage of products/services in the four categories of customisation: (a) completely standardised, (b) basic models that are customised according to organisational specifications, (c) basic models that are customised according to client's specifications, and (d) completely customised. Hyvonen (2007) focused on customer-focused strategies. These strategies are a form of product differentiation strategy. Therefore, the measurement of these strategies in this study is derived from Chenhall and Langfield-Smith's (1998a) study.

3.4.2 How Contingency Theory Was Applied

Unlike those studies that examined the relationship between external environment and MA, all these studies used the contingency approach except Bouwens and Abernethy (2000) and Abdel-Kader and Luther (2008) who used only the congruency approach (see Table 3.4). Four of them used the contingency approach as interaction form: they are Abernethy and Guthrie (1994), Chong and Chong (1997), Hoque (2004) and Hyvönen (2007). Chong and Chong (1997) and Hoque (2004) used MAS as the mediator variable of the relationship between strategy as an independent variable and organisational performance as the dependent variable, whereas Abernethy and Guthrie (1994) and Hyvonen (2007) adopted MAS as the moderator variable. While Govindarajan (1988), Abernethy

and Lillis (1995) and Perera and Poole (1997) applied interaction form but with other forms/approaches, Abernethy and Lillis (1995) and Perera and Poole (1997) used it with the congruency approach, while Govindarajan (1988) used the contingency approach as both interaction form and holistic form; however, all of them applied this form (interaction) as moderation model. Chenhall and Langfield-Smith (1998a) chose the Contingency approach as Holistic form to investigate “*the way in which MAPs combine with management techniques, under various strategic priorities, to enhance performance*” (Chenhall & Langfield-Smith, 1998a, p. 243). On the other hand, the most recent study (King *et al.*, 2010) used both approaches – the congruency approach and the contingency approach – applying the contingency approach as a holistic form (see Table 3.4).

Table 3.4 Summary of Studies of Contingency Application with Business Strategy

	Study	Concept of fit applied by the study			
		Congruency	Contingency		
			Holistic	Interaction	
			Mediation	Moderation	
1	Govindarajan (1988)		√		√
2	Abernethy and Guthrie (1994)				√
3	Abernethy and Lillis (1995)	√			√
4	Chong and Chong (1997)			√	
5	Perera and Poole (1997)	√			√
6	Chenhall and Langfield-Smith (1998a)		√		
7	Bouwens andAbernethy (2000)	√			
8	Hoque (2004)			√	
9	Hyvonen (2007)				√
10	Abdel-Kader and Luther (2008)	√			
11	King <i>et al.</i> (2010)	√	√		

3.4.3 How MAS Was Examined

According to this criterion these studies can be divided into three groups as follows:

The first group is concerned with the characteristics of information such as scope, timeliness, aggregation and integration. These studies are Abernethy and Guthrie (1994), Chong and Chong (1997) and Bouwens and Abernethy (2000). Abernethy and Guthrie (1994) and Chong and Chong (1997) studied the characteristics of the

scope of information as developed by Chenhall and Morris (1986). They suppose that there is relationship between the kinds of business strategy, namely, prospector-type and defender-type, using broad scope MAS information and performance. Abernethy and Guthrie (1994) assumed that '*broad scope information will have a more positive effect on performance in prospector-type firms than in defender-type firms*' (p. 56), using a moderated regression analysis to examine this premise. Chong and Chong (1997) hypothesised that '*there is an indirect relationship between SBU strategy and SBU performance through the extent to which managers use broad scope MAS information for decision making*' (p. 270), using a path analytic technique to test the hypotheses. Bouwens and Abernethy (2000) formulated a hypothesis that there is a positive indirect relation between customisation (as strategy) and the MAS dimensions, which are also developed by Chenhall and Morris (1986), namely, scope, integration, aggregation and timeliness, acting through departmental interdependence, developing a path model to test this indirect relation.

The second group is concerned with performance measures by Abernethy and Guthrie (1994), Perera and Poole (1997), Hoque (2004) and Hyvonen (2007). Abernethy and Lillis (1995) examined the impact of manufacturing flexibility on the use of an efficiency-based performance measurement system. For performance measures, they developed a measurement list based on Kaplan (1983) and Howell and Soucy (1987). The list included 18 items in terms of cost efficiency, flexibility and, for completeness, quality and dependability measures and correlation analysis technique was used to test this impact. Perera and Poole (1997) tested two hypotheses: (1) Increasing customer focus in manufacturing strategy is associated with an increasing use of non-financial measures, and (2) increasing use of non-financial measures is associated with enhanced performance in customer-focused firms. They followed up Abernethy and Lillis' (1995) study in terms of performance measures, using the same 18 items. A bivariate correlation was used to test the first hypothesis and an analysis regression equation was adopted to test the second hypothesis. Hoque (2004) investigated the role of the choice of performance measures on the relationship between strategic priorities and performance. He assumed that there is '*a positive relationship*

between business unit strategy and performance through management's choice of non-financial measures of performance' (p. 485). The study used instruments that included 13 items for measuring non-financial performance as developed by Abernethy and Lillis (1995). In order to test the study's hypotheses a path analytical model was used. Hyvonen (2007) investigated the relationships between customer-focused strategy, contemporary and financial performance measures and customer performance. The contemporary and financial performance measures were measured using financial and non-financial measures. Financial measures were measured by four items: budget variance analysis, controllable profit, divisional profit and return on investment. Non-Financial measures were also measured by four items: non-financial measures, qualitative measures, balanced scorecard and customer satisfaction surveys. These measures were developed in Chenhall and Langfield-Smith's (1998b) study.

The third group is concerned with other MAPs. Govindarajan (1988) explored the relationship between the implementation of strategic business unit (SBU) strategy and three administrative mechanisms. The three administrative mechanisms are decentralisation (an organisational structure variable), budget evaluative style (a control system variable) and managers' locus of control (a managerial characteristic variable). Budget evaluative style was measured according to the amount of emphasis placed on meeting budgetary goals when evaluating the general manager's performance. He assumed that "*SBUs employing a strategy of differentiation, deemphasizing budgetary goals during performance evaluations is likely to be associated with high SBU effectiveness. For SBUs employing a strategy of low cost, emphasizing budgetary goals during performance evaluations is likely to be associated with high SBU effectiveness*" (p.833). This hypothesis was tested by moderated regression analyses. Chenhall and Langfield-Smith (1998a) examined how MAPs combine with management techniques, under various strategic priorities, to enhance performance. MAPs included in this study were traditional management accounting techniques, activity-based techniques, balanced performance measures, employee-based measures, benchmarking and strategic planning. A cluster analysis was performed to examine hypothesised associations between performance and a range of MAPs under different strategic

priorities. Abdel-Kader and Luther (2008) examined the effect of a set of contingent variables on MAPs sophistication. MAPs were divided into four stages according to IFAC stages. Each of the 38 individual MAPs was classified under one of four levels of sophistication relating to each of IFAC's four stages, and a cluster analysis used for the study's hypotheses. King *et al.* (2010) focused on the adoption and extent of use of budgets, as this is considered to be one of the main management control systems. The study assumed that the adoption of a written budget is positively associated with decentralisation: '*the extent of written budget use by primary healthcare businesses which opt to use written budgets is positively associated with business structure (decentralisation)*' (p. 45).

3.4.4 How the Outcome Was Measured

As stated earlier, there are eight studies adopting the contingency approach which lays emphasis on outcome. In this context, six of them measured it using an instrument developed by Govindarajan (1984) and subsequently used by Govindarajan and Gupta (1985), Govindarajan (1988), Abernethy and Guthrie (1994), Chong and Chong (1997), Chenhall and Langfield-Smith (1998a), Hoque (2004) and Hyvonen (2007). They measured the organisational performance along a multiplicity of dimensions rather than on any single dimension, to arrive at a measure of overall effectiveness. The respondents were asked to assess their organisation's performance over the past years, across 10/12 dimensions on a five/seven point range Likert-type scale. In addition, Hyvonen (2007) also asked the respondents to evaluate the degree of importance of these dimensions for their business unit; these two scores (performance and importance) for twelve different dimensions are multiplied. These dimensions are return on investment, profit, cash flow from operations, cost control, development of new products, sales volume-od, market share, market development, personnel development, R&D activities, sales growth rate and political-public affairs. King *et al.* (2010) adopted a subjective measure of performance that was originally developed by Govindarajan and Gupta (1985). They viewed the economic/financial aspect as being of primary importance, given the profit orientation of their sample businesses, and capture the respondent's perceptions of their business

performance relative to the competition using six questionnaire items. They asked the respondents to describe their response to these statements over the past 3-year period, compared to key competitors (Is more competitive, Has more patients, Is growing faster, Is more profitable, Is more innovative, Has more doctors?).

Abernethy and Lillis (1995) followed Khandwalla (1972), Brownell and Merchant (1990) and others. The respondents were asked to rate the performance of their organisation relative to that of competitors on a five-point fully anchored Likert-type scale. Meanwhile, Perera and Poole (1997) developed Swamidass and Newell's (1987) instrument. The respondents were asked to rate performance against industry average on each of the three dimensions of annual rate of growth in sales, profitability and return on assets over the past three years.

3.4.5 Discussion of the Results

This subsection will be devoted to reviewing the results of these studies. It is divided into three parts according to the type of strategy typology, namely Miles and Snow's typology (1978), Porter's typology (1980) and other typologies.

As mentioned above, three studies adopted the Miles and Snow typology (Abernethy & Guthrie, 1994; Chong & Chong, 1997; Hoque, 2004). In general, it can be said that the results of these studies are consistent and support each other. Abernethy and Guthrie (1994) found that there are significant differences between strategic groups (i.e. prospector group and defender group). They reported that the characteristics of the broad scope of information are more effective in organisations employing a prospector strategy than in organisations employing a defender strategy. Chong and Chong (1997) indicated that the direct impact of strategy on performance was non-significant, while the indirect effects (through MAS) were significant. Therefore, they revealed that '*strategy is important antecedents of MAS design, and that broad scope MAS information is an important antecedent of SBU performance*' (p. 268). Hoque's (2004) results show a significant and positive indirect relationship between strategic choice and performance via high use of non-financial measures for performance evaluation. It is worth mentioning that all these studies adopted the contingency approach and

interaction form but Abernethy and Guthrie (1994) used it as a moderation model, whereas Chong and Chong (1997) and Hoque (2004) used it as a mediation model.

According to Porter's (1980) typology, the studies that employed this typology and used the contingency approach – Govindarajan (1988), Chenhall and Langfield-Smith (1998a) and King *et al.* (2010) – are to a certain degree consistent, while these studies are not consistent with Abdel-Kader and Luther's (2008) study which used the congruency approach. Govindarajan (1988) provides support for the relationship among strategy and budget evaluative style and performance using both the interaction and holistic forms. He found that low emphasis on meeting a budget is associated with high performance in the strategy business unit (SBU) employing a strategy of differentiation. In addition, the coefficient was significantly negative, thereby providing support for the holistic hypothesis which includes budget evaluative style, decentralisation and locus of control. Chenhall and Langfield-Smith (1998a) argue that the overall results provided support for the first hypothesis, which assumed that higher performing organisations employing a differentiation strategy would benefit from certain MAPs, namely balanced performance measures, employee-based measures, benchmarking and strategic planning techniques. While some support was provided for the second hypothesis, it was believed that higher performing organisations employing a low price strategy would benefit from other practices, namely, traditional accounting techniques and activity-based techniques. On the other hand, Abdel-Kader and Luther (2008) emphasise that sophistication of MAPs is not associated with business strategy; so the business strategy cannot explain the differences in MAPs. King *et al.* (2010) investigated the relationship between the contextual factors identified from contingency-based research, the adoption and extent of use of budgets, and business performance within the Australian primary healthcare setting. It aimed to provide evidence on linking contingency factors, adoption and extent of budget use, and business performance. The study reported that factors identified by contingency-based research are important for predicting the adoption and extent of budget use. Specifically, it found that using written budgets implements operating budgets to a greater extent

if they are more employed in a cost leadership strategy. In addition, the study provided evidence that an organisation's performance is positively associated with the degree of fit between the extent of budget use and its contingent factors.

As for the results of studies that employed other strategies, to a large extent these were contradictory. Abernethy and Lillis (1995) reported that flexibility correlated negatively with the use of efficiency-based performance measures. In addition, the interaction effect between flexibility and efficiency-based measures was negative and significant. Perera and Poole (1997) found there is a strong positive correlation between non-financial measures and a customer-focused manufacturing strategy, which was expected in the first hypothesis. By contrast, the second hypothesis which stated that *'Increasing use of non-financial performance measures is associated with enhanced performance for firms pursuing customer-focus in manufacturing strategy, as proxied by the implementation of AMP and AMT'* (p. 560) was rejected. The study applied two approaches of contingency theory – the congruency approach in the first hypothesis and the contingent approach using the interaction form with moderation model in the second hypothesis. However, the results of both hypotheses were not supported by each other. At the same time, Bouwens and Abernethy (2000) indicated that customisation strategy does not directly affect the characteristics of MAS but rather operates via the interdependencies created when such a strategic priority is pursued. Absence of a direct effect of the strategy is not consistent with Perera and Poole's (1997) finding; this is possibly because diminution of MAS is different, as Perera and Poole (1997) were concerned with non-financial measures, whereas Bouwens and Abernethy (2000) were concerned with the characteristics of MA information. Hyvonen's (2007) results indicate that non-financial measures do not help firms that follow a customer-focused strategy to enhance their performance. On the other hand, the results indicate that a fit between the customer-focused strategy and financial performance measures will improve customer performance.

Table 3.5 Summary of Business Strategy Studies

Authors, year and country	Variable measured	Characteristics of MAS	Form of fit & statistical technique	Performance measured	Key findings
Govindarajan 1988 US	Using differentiation and low-cost strategy: product selling price, percent of sales spent on research and development, percent of sales spent on marketing expenses, product quality, brand image, and product features	Budget evaluative style	Contingency approach of interaction form, moderation model and holistic form, using regression technique	Using instrument developed by Gupta and Govindarajan (1984), ten performance dimensions: return on investment, profit, cash flow from operations, cost control, development of new products, sales volume, market share, market development, personnel development, and political-public affairs.	Low emphasis on meeting a budget is associated with high performance in SBUs employing a strategy of differentiation. The multivariate fit was significant among differentiation SBUs but not significant among low-cost units
Abernethy and Guthrie 1994 Australia	Using Miles and Snow's (1978) strategic typology. A brief description of a defender-type firm and a prospectors-type. Companies asked to select which description represented their business unit.	Scope of information	Contingency approach of interaction form, moderation model, using regression analysis	Using self-rating instrument developed by Gupta and Govindarajan (1984) and Govindajan and Gupta (1985)	Performance is a significantly more positive function of broad scope information for prospector firms than for defender firms is supported.
Abernethy and Lillis 1995 Australia	Manufacturing flexibility, which include the proportion of turnover from non-standard product lines and extent to which the manufacturing process provides flexibility to offer customers product variations.	Performance measurement system by asking 18 items based on Kaplan (1983) and Howell & Saucy (1987), included cost efficiency, flexibility and, for completeness, quality and dependability measures.	Congruency approach and contingency approach of interaction form, moderation model, using correlation analyses and regression analyses	Following Khandwalla (1972) Brownell & Merchant (1990) and others, general managers were asked to rate the performance of the firm relative to that of competitors on a five-point fully anchored Likert-type scale.	Flexibility correlated negatively with the use of efficiency- based performance measures. There was a significant difference between flexible and non flexible firms in terms of efficiency-based measures. The interaction effect between flexibility and efficiency- based measures was negative and significant
Chong and Chong	Strategy was measured based on Miles and Snow's (1978)	Scope information	Contingency approach of	Performance was measured by a self-rating scale using an	Significant positive direct effect of PEU on MAS, significant

1997 Australia	strategic typology. Managers were asked to select the descriptions of prospector and defender-type strategy which most closely matched their business units.		interaction form, mediation model, using path analysis technique	instrument originally developed by Govindarajan (1984).	indirect effect between SBU strategy and PEU on SBUs performance through the extent to which managers use broad scope MAS information, PEU are important antecedents of MAS design, and scope MAS information is an important antecedent of performance.
Perera, Harrison and Poole 1997 Australia	Customer-focus.	Performance measurement which was measured by adapting Abernethy and Lillis, 1995, the instrument comprised 11 non-financial and 4 financial measures.	Congruency approach and contingency approach of interaction form, moderation model, using regression technique.	A self-rating instrument using three dimensions of annual rate of growth in sales, profitability and return on assets over the past three years.	The study provides empirical evidence of the increased the use of non-financial performance measures by firms pursuing a customer-focused manufacturing strategy.
Chenhall &Langfield-Smith 1998 Australia	Strategy was measured based on strategic priorities which were divided into: differentiation, low price and combination of both.	33 item of MAPs that reduced to 6 dimensions of MAPs.	Contingency approach, holistic form, using cluster analysis	Using an instrument developed by Govindrajagan (1988)	Higher performing organisations employing a differentiation strategy would benefit from certain MAPs, namely balanced performance measures. While, higher performing organisations employing a low price strategy would benefit from other practices, namely, traditional accounting techniques and activity-based techniques.
Bouwens and Abernethy 2000 Netherlands	Customization Strategy, Using 5 descriptions ranging from completely standard to completely customization	Four dimensions of MAS: scope, integration, aggregation and timeliness	Congruency approach and contingency approach but using interdependence as mediator variable, employing using path analysis		The results indicate that customization affects MAS via interdependence, rather than directly. little difference in MAS use between production and sales managers facing similar amounts of customization or interdependence

Zahirul Hoque 2004 New Zealand	Using the Miles and Snow (1978) typology (i.e. prospectors and defenders	Non-financial measures	Contingency approach of interaction form, mediation model, using analytical technique	Performance was measured by a self-rating scale using an instrument originally developed by Govindarajan (1984).	A significant and positive association between management's strategic choice and performance acting through management's high use of non-financial measures for performance evaluation
Hyvonen 2007 Finland	A customer-focused strategy, the measurement is derived from Chenhall and Langfield-Smith's (1998a) study.	Performance measures, Contemporary and financial performance measures	Contingency approach of interaction form, moderation model, using correlation analysis and regression	Customer performance, it was derived from Govindarajan (1988).	The results indicate that contemporary performance measures do not help firms with a highly customer-focused strategy to achieve high customer performance. The fit between the customer-focused strategy and financial performance measures improves customer performance
Abdel-Kader and Luther 2008 UK	Using differentiation and low-cost strategy	38 MAPs into one of four levels of sophistication relating to each of IFAC's four stages	Congruency approach, using kruskal wallis one way ANOVA		Differences in MA sophistication are not significantly explained by business strategy.
King, Clarkson and Wallace 2010 Australia	Using differentiation and low-cost strategy	Using a written budget. It captured both the types of budgets used and the extent of their use.	Congruency approach and contingency approach, of holistic form, using regression analysis	It adopts subjective measure which captures respondent's perceptions of their business's performance relative to the competition using 6 items: Is more competitive, Has more patients, Is growing faster, Is more profitable, Is more innovative, Has more doctors	It was found that using written budgets implement operating budgets to a greater extent if they are more employ a cost leadership strategy. In addition, the study provide evidence of a positive association between the extent of "fit" and performance

3.5 Empirical Studies of Organisation Structure

Despite the importance of organisation structure for understanding management control systems, only a few studies have considered the fit between them (Chenhall, 2003). Consequently, it is useful to review the previous empirical studies concerned with this relationship. Along the same lines as the previous factors, this section presents a brief review of nine existing empirical studies that examine the relationship between organisation structure and MAS. These studies are by Gordon and Narayanan (1984), Chenhall and Morris (1986), Gul and Chia (1994), Chia (1995), Libby and Waterhouse (1996), Nicolaou (2000), Abdel-Kader and Luther (2008), Soobaroyen and Poorundersing (2008) and King *et al.* (2010). They will be reviewed according to the above-mentioned criteria.

3.5.1 How Organisation Structure Was Perceived and Measured

In light of the previous discussion, organisation structure can be studied according to many dimensions such as centralisation, standardisation, formalisation and configuration. Of these nine studies, eight of them were concerned with centralisation/ decentralisation, while only one study was concerned with formalisation (Nicolaou, 2000). All the eight studies defined centralisation/decentralisation as the extent of the concentration of authority at higher levels or the degree of authority delegated by the chief executive of the firms for making decisions. Six of them measured it by a measurement developed by Buns and Stalker's (1961) classification of mechanistic organic continuum. They used five questions to indicate the degree of authority delegated by the chief executive to make decisions related to development of new products, the hiring and firing of managerial personnel, selection of large new investments, pricing of new products and significant price changes, and budget setting (Abdel-Kader & Luther, 2008; Chia, 1995; Gordon & Narayanan, 1984; Gul & Chia, 1994; King *et al.*, 2010; Nicolaou, 2000; Soobaroyen & Poorundersing, 2008). Chenhall and Morris (1986) and Libby and Waterhouse (1996) measured it by abbreviated Aston measures of concentration of authority at higher levels, using a series of standard decisions and identifying whether managers have decisive autonomy of

the scale developed by Pugh *et al.* (1968). They asked the respondents to identify the most junior level of job that has authority to make decisions on a list of operating policies.

Nicolaou (2000) in his study is concerned with formalisation as one aspect of organisation structure. It is perceived as the extent of use of formal policies and procedures in the organisation, the monitoring of compliance to establish policies and procedures, and the existence of penalties in case procedures are not followed.

3.5.2 How Contingency Theory Was Applied

As shown in table (3.6), most of these studies use the congruency approach, while only three did not use it – Gul and Chia (1994), Chia (1995) and Nicolaou (2000). However, there are two recent studies (King *et al.*, 2010; Soobaroyen & Poorundersing, 2008) that used both the congruency approach and the contingency approach. These studies may have used both approaches in response to some recent calls from such as Gerdin and Greve (2004), who recommend the use of more than one approach/form of fit.

Table 3.6 Summary of Studies of Contingency Application with Organisation Structure

	Study	Concept of fit applied by the study			
		Congruency	Contingency		
			Holistic	Interaction	
				Mediation	Moderation
1	Gordon and Narayanan (1984)	√			
2	Chenhall and Morris (1986)	√			
3	Gul and Chia (1994)		√		
4	Chia (1995)				√
5	Libby and Waterhouse (1996)	√			
6	Nicolaou (2000)		√		
7	Abdel-Kader and Luther (2008)	√			
8	Soobaroyen and Poorundersing (2008)	√		√	
9	King <i>et al.</i> (2010)	√	√		

Therefore, the number of studies that applied the contingency approach is five – three of them, (Gul & Chia, 1994; King *et al.*, 2010; Nicolaou, 2000) use it in the

holistic form and two adopt the interaction form, one, Chia (1995), as moderation model and the other, Soobaroyen and Poorundersing (2008), as mediation model.

3.5.3 How MAS Was Examined

Similar to other factors, most of these studies focused on the characteristics of MAS information to be examined with organisational structure (Chenhall & Morris, 1986; Chong, Eggleton, & Leong, 2005; Gordon & Narayanan, 1984; Gul & Chia, 1994; Nicolaou, 2000; Soobaroyen & Poorundersing, 2008). Chenhall and Morris (1986), Chong *et al.* (2005), Gul and Chia (1994), Nicolaou (2000) and Soobaroyen and Poorundersing (2008) used the characteristics of information developed by Chenhall and Morris (1986), namely, scope, timeliness, aggregation and integration. Gordon and Narayanan's (1984) study examined the importance of three kinds of information – externally oriented, non-financially oriented and ex ante oriented – for making various organisational decisions; while Nicolaou (2000) used AIS integration which is defined in terms of the following two characteristics: (a) the degree of integration in internal AIS applications and (b) the degree of integration between the interorganisational electronic data interchange (EDI) systems and the internal AIS applications. A positive relationship is presumed to exist between decentralisation and the characteristics of MAS information.

The remaining studies focused on a variety of aspects of MACS. Libby and Waterhouse (1996), as mentioned earlier, focused on a variety of aspects of MAS, in which the number of MAS changes was measured as the amount of the reported number of changes within the period 1991–1993. A list of 23 different items of MAS included five main types: planning, controlling, costing, directing and decision making which were provided to the respondents to indicate the changes that had occurred in any of these systems during this period. Abdel-Kader and Luther (2008) examined the sophistication levels of MAPs. MAPs were divided into four stages according to IFAC stages. Each of 38 individual MAPs was classified under one of four levels of sophistication relating to each of IFAC's four stages. Abdel-Kader and Luther (2008) considered each stage as being more sophisticated than its predecessor. This implies that MAPs applied in the first

stage are the least sophisticated, while MAPs applied in the fourth stage are the most sophisticated. King *et al.* (2010) focused on the adoption and extent of use of budgets, as they are considered to be one of the main management control systems. The study assumed that the adoption of a written budget is positively associated with decentralisation; moreover, '*the extent of written budget use by primary healthcare businesses which opt to use written budgets is positively associated with business structure (decentralisation)*' (p. 45).

3.5.4 How the Outcome Was Measured

As five studies used the contingency approach, this implies that there are five studies that are concerned with the measures of outcome. These studies use a variety of aspects of outcome. Three of them (Chia, 1995; Gul & Chia, 1994; Soobaroyen & Poorundersing, 2008) used the subjective measure of managerial performance. They asked the respondents a set of questions to indicate the extent to which managers have accomplished their jobs effectively; these questions concerned planning, investigating, coordinating, evaluating, supervising, and staffing. Nicolaou (2000) used the instrument that was developed by Doll and Torkzadeh (1988). It was used to measure user satisfaction (a surrogate measure for AIS effectiveness). The instrument encompasses five related sets of information concepts: information content, accuracy, format, ease of use and timeliness, including twelve items. King *et al.* (2010) adopted a subjective measure of performance that captures respondent perceptions of their business performance relative to the competition using six questionnaire items. They asked the respondents to describe their responses to these statements over the past 3-year period, compared to key competitors (Is more competitive, Has more patients, Is growing faster, Is more profitable, Is more innovative, Has more doctors?).

3.5.5 Discussion of the Results

Although these studies adopted different ways of contingency theory and a variety of aspects of MAS, the findings were to some extent consistent; they indicated a positive association between organisational structure and MAS. Gordon and Narayanan (1984) examined the relationship between organisational structure and

information systems. They assumed that the importance of external, non-financial and ex ante information is positively associated with organic forms of organisation. They reported that it does not appear that an organisation's information system and structure are significantly related to each other.

Chenhall and Morris's (1986) results show a significant association between aggregated and integrated information and decentralisation, whereas scope and timely information were not significantly associated with decentralisation. In addition, decentralisation plays a mediating role in the indirect impact of environmental uncertainty and interdependence on MAS.

Gul and Chia (1994) used the holistic form to examine the effect of interaction between PEU, decentralisation and MAS characteristics of scope and aggregation on managerial performance. They reported that decentralisation and MAS information characteristics of broad scope and aggregation were associated with higher managerial performance under conditions of high PEU. Under conditions of low PEU, decentralisation and broad scope and aggregated information of MAS were associated with lower managerial performance.

Chia (1995) used the moderating impact of decentralisation on each of the MAS characteristics influencing managerial performance. Chia supposed that the degree of decentralisation significantly moderates the sophistication level of each of the MAS information characteristics (i.e. scope, aggregation, integration and timeliness) to affect managerial performance. The four hypotheses were supported; so the results indicate that decentralisation significantly interacts with each of the MAS information characteristics to positively enhance performance. Therefore, managerial performance can be promoted through a joint consideration of the appropriate control subsystems in an organisation.

Nicolaou's (2000) study examined the relationship between the degree of fit of organisational requirements for coordination and control with the design of an AIS and perceptions of effectiveness about the system. Nicolaou assumed that the degree of fit between AIS integration and the contingent variables predicts AIS effectiveness. The results showed that interdependence between organisational

formalisation, information interdependence among functional areas, and dependence in interorganisational information sharing and electronic data have a significant impact on the requirements and purpose of an organisational system. Therefore, *“the fit between AIS design and those requirements significantly contributed to perceptions of monitoring effectiveness and to perceptions about the accuracy of information outputs. System fit, however, failed to exhibit a strong effect on user information satisfaction, that is, on the perceived quality of information content available in system outputs”* (p. 102).

Soobaroyen and Poorundersing (2008) examined the relationship between the quality and sophistication of MAS, decentralisation and managerial performance. Two approaches of contingency theory were used in this study, the congruency approach and the contingency approach mediation model. Therefore, they formulate two kinds of hypothesis: firstly they supposed that there is a positive relationship between decentralisation and level of quality and sophistication of MAS information characteristics, namely scope, timeliness, integration and aggregation; secondly, they supposed that these characteristics of MAS information have a significant mediating impact on the relationship between decentralisation and managerial performance. The results indicated that decentralisation has an effect on the characteristics of MAS and managerial performance through the availability of a broader scope, more timely, highly aggregated and highly integrated MAS.

Libby and Waterhouse’s (1996) study aims to examine the relationship between changes in MACS and several organisational and contextual variables, one of which is decentralisation. The regression analysis shows that there is no significant relationship between the number of changes and decentralisation.

Abdel-Kader and Luther (2008) examined the impact of 10 contingent factors on individual organisation’s MAPs to explain the extent to which these factors affect the sophistication level of MAPs. One of their hypotheses is that *‘Firms characterised as decentralised adopt more sophisticated MAPs than firms characterised as centralised’* (p. 7). The results support this hypothesis and

indicate that differences in MA sophistication are significantly explained by decentralisation.

King *et al.* (2010) investigated the relationship between contextual factors identified from contingency-based research, the adoption and extent of use of budgets, and business performance within the Australian primary healthcare setting. The study aimed to provide evidence linking contingency factors, adoption and extent of budget use, with business performance. The study reported that factors identified by contingency-based research are important for predicting the adoption and extent of budget use. Specifically, it found that an organisation's adoption of written budgets is positively related to its structure (decentralisation). In addition, the study provided evidence that an organisation's performance is positively associated with the degree of fit between the extent of budget use and its contingent factors.

Table 3.7 Summary of Organisation Structure Studies

Authors, year and country	Variable measured`	Characteristics of MAS	Form of fit & statistical technique	Performance measured	Key findings
Gordon and Narayanan 1984 US	The decentralisation was measured as Bums & Stalker's (1961) classification of mechanistic organic continuum. Using five questions to measure the degree of decentralisation of decision making: the development of new products or services. The hiring and firing of managerial personnel, selection of large investments, budget allocations and pricing decisions.	External, non-financial and future oriented information.	Congruency approach and employing, using correlation analysis.		The results showed that it does not appear that an organisation's information system and structure are significantly related to each other.
Caenhall and Morris 1986 Australia	Using decentralisation, which was measured by to the extant the concentration of authority at higher levels, using a series of standard decisions and identifies whether managers have decision autonomy.	Information characteristics (scope, aggregation and integration).	Congruency approach, configuration form and, decentralization was used as independent and mediator variable, employing regression and path analytical.		The results indicates that aggregated and integrated information were significantly associated with decentralization, whereas scope and timely information were not significantly associated with decentralization. PEU and interdependence had indirect impact on MAS through the decentralization.
Gul and Chia 1994 Singapore	Decentralisation, Using instrument developed by Bums & Stalker's (1961) and Gordon and Narayanan (1984).	Information characteristics (scope and aggregation).	Contingency approach of holistic form, employing multiple, using regression equation.	Subjective measure of managerial performance developed Mahoney <i>et al.</i> (1963), Govindarajan, 1986): Investigating, coordinating, evaluating, supervising, staffing, negotiating, representing.	The results indicated that decentralisation and broad scope MAS information and aggregation were associated with higher managerial performance under conditions of high PEU. Under conditions of low PEU decentralisation and broad scope MAS and aggregated information were associated with lower managerial performance.

Chia, 1995, Singapore	Decentralization, Using instrument developed by Bums & Stalker's (1961) and Gordon and Narayanan (1984).	MAS information characteristics, four dimensions.	Contingency approach, interaction form, moderation model, employing regression analysis.	It focuses on managerial performance, nine questions to indicate the extent to which managers have accomplished their job effectively: these were about planning, investigating, coordinating, evaluating, supervising, staffing, negotiating.	The results indicate that decentralization significantly interacts with each of the MAS information characteristics to positively enhance performance.
Libby and Waterhouse 1996 Canada	Decentralization, it was measured using an abbreviated form of the Aston concentration of authority scale developed by Pugh <i>et al.</i> (1968). Respondents were asked to identify the most junior level of job that has the authority to make decisions on a list of operating policies.	Extent of changes in MAS.	Congruency approach, employing multiple regression.		The results show no significant relationship between the number of changes and decentralization.
Nicolaou 2000 USA	Formalisation, the scale measures the extent of use of formal policies and procedures in the organization, the monitoring of compliance to established policies and procedures, and the existence of penalties in case procedures are not followed.	Using AIS integration, using two characteristics: (a) the degree of integration in internal AIS applications and (b) the degree of integration between the interorganisational electronic data interchange (EDI) systems and the internal AIS applications.	Contingency approach of holistic form, employing regression analysis	AIS effectiveness was used to measure user satisfaction. The instrument encompasses five related sets of information concepts: information content, accuracy, format, ease of use, and timeliness. This instrument, hereafter called the "UIS" scale, includes twelve items	The fit between the accounting system design and the contingency factors resulted in a more successful system. Specifically, system fit was a significant factor that explained variations in perceived AIS effectiveness

Abdel-Kader and Luther 2008 UK	Decentralization, using instrument developed by Bums & Stalker's (1961) and Gordon and Narayanan (1984).	38 MAPs into one of four levels of sophistication relating to each of IFAC's four stages.	Congruency approach, employing Kruskal-Wallis one way ANOVA.		The differences in MA sophistication are significantly explained by decentralisation.
Soobaroyen and Poorundersing 2008 Mauritius	Decentralization, using instrument developed by Bums & Stalker's (1961) and Gordon and Narayanan (1984).	MA information characteristics, four dimensions.	Congruency approach, and contingency approach, interaction form, mediation model, employing regression and path analysis.	Using instrument that was used by Chia (1995).	A weak but positive relationship is observed for MAS aggregation and decentralization. Decentralization policy has a beneficial effect on the quality and sophistication of MAS provided at functional level, which in turns has a combined positive effect of managerial performance.
King, Clarkson and Wallace 2010 Australia	Decentralization, using instrument developed by Bums & Stalker's (1961) and Gordon and Narayanan (1984).	Using a written budget. It captured both the types of budgets used and the extent of their use.	Congruency approach and Contingency approach of holistic form, employing regression analysis.	It adopts subjective measure which captures respondent's perceptions of their business's performance relative to the competition using 6 items: Is more competitive, Has more patients, Is growing faster, Is more profitable, Is more innovative, Has more doctors.	Specifically it was found that a business's use of written budgets is positively related to its structure (decentralisation).

3.6 Empirical Studies of Technology

Research studies on management accounting have widely examined the relationships between the kind of technology used and the organisation structure (Otley, 1980). Otley (1980) argued that the technology factor thus has an important effect on the type of accounting information that can be provided and more recent work has distinguished different aspects of technology that have an effect on the information that should be provided for effective performance. It is worth mentioning here that most of the studies that focused on explaining the relationship between organisation technology and MAS have not used the contingency perspective, while only a few studies applying contingency theory have sought to uncover the impact of technology (Kaplan & Mackey, 1992). This section reviews the literature examining the relationships between different types of technology such as production technology and the use of advanced manufacturing technology and MAPs; this review only includes three studies, Kaplan and Mackey (1992), Baines and Langfield-Smith (2003) and Abdel-Kader and Luther (2008).

3.6.1 How the Technology Was Perceived and Measured

Organisation technology could be studied by many dimensions such as production technology (e.g. complexity of processing) and advanced manufacturing technology (flexible manufacturing systems, computer integrated manufacturing). In the current review, it is found that one of them used level of complexity of production process (Kaplan & Mackey, 1992), while the other one used manufacturing operations technologies (Baines & Langfield-Smith, 2003), and Abdel-Kader and Luther (2008) used three-dimensions complexity of production process, advanced manufacturing technology and two advanced techniques – total quality management and just-in-time.

Kaplan and Mackey (1992) were concerned with the production process to determine whether a plant was a job shop or a flow shop. The job shop and flow shop distinguish production processes in terms of the number and predictability of bottlenecks. Bottlenecks are typically fewer in number, occur in predictable

locations, and are relatively stable in flow shops. On the other hand, bottlenecks typically are larger in number and do not occur in predictable locations in job shops. In addition, the respondents were asked two other questions, one of them regarding a flow shop which would produce a smaller number of major product lines, and the other one was whether the major product lines represent commodity or custom products. Flow shops typically produce more commodity products, and Job shops typically produce more custom products.

Baines and Langfield-Smith (2003) studied the effect of changes in technology via the introduction of new technologies in manufacturing operations, which include just-in-time purchasing, just-in-time production, total quality management, flexible manufacturing systems, computer-integrated manufacturing, computer-aided design, computer-aided manufacturing, materials requirements planning and manufacturing resource planning.

Abdel-Kader and Luther (2008) studied the effect of the complexity of the production process, advanced manufacturing technology and two advanced techniques – total quality management and just-in-time. Complexity of production process was measured through three dimensions, namely, product line diversity, similarities in the products' design and production, and the existence of major differences between volumes across products and batch sizes. Advanced manufacturing technology (AMT) was measured using 14 questions to indicate the extent of AMT application, including manufacturing resource planning computer-aided design, numerical control, computer numerical control, flexible manufacturing systems, robotics, automated materials handling, computer-aided test/inspection and computer-aided process planning and the terms of integration of manufacturing processes using computers.

3.6.2 How Contingency Theory Was Applied

Considering that the number of studies dealing with technology is very limited, so the diversity of applying contingency theory has also been very limited. It is clear that two of them used the contingency theory as a congruency approach (Abdel-Kader & Luther, 2008; Kaplan & Mackey, 1992), while Baines and Langfield-

Smith (2003) applied it as both congruency approach and contingency approach using the interaction form.

3.6.3 How MAS Was Examined

Also, these studies were different in terms of the management accounting dimensions that examined their relationship with technology. Kaplan and Mackey (1992) sought to provide evidence on the association between the type of production process and the use of accounting information to evaluate the performance of production managers. Specifically, they examined the relationship between the purposes of costing and the type of production process in production departments to determine whether control of managers is identified as one purpose of costing in production departments or not.

Baines and Langfield-Smith (2003) investigated the changes in the organisational environment to discover whether they have led to changes in the business strategy, organisational design, advanced manufacturing technology and advanced MAPs. These changes in turn are hypothesised to influence the use of non-financial management accounting information (MAI) by managers, which may lead to improved organisational performance. The changes in advanced MAPs were examined by explaining the extent to which the use of contemporary MAPs had changed during the last three years. These contemporary MAPs were activity-based costing, activity-based management, target costing, value chain analysis, benchmarking, product life-cycle analysis, product profitability analysis, customer profitability analysis, and quality improvement programs; while the changes in non-financial MAI that indicate the extent to which the respondents rely on non-financial management accounting information decision making had changed over the last three years. Nineteen items about on-time delivery, customer satisfaction, ongoing supplier evaluations, rate of new product introductions, and measures of set-up times were included.

Finally, Abdel-Kader and Luther (2008) examined the impact of a range of potentially contingent variables (such as technology) on the sophistication levels of MAPs. As indicated earlier, they identified the sophistication levels of MAPs

by dividing them into four, according to IFAC stages. Each of the 38 individual MAPs was classified under one of four levels of sophistication relating to each of IFAC's four stages. Abdel-Kader and Luther considered each stage more sophisticated than its predecessor. This implies that MAPs applied in the first stage are the least sophisticated, while MAPs applied in the fourth stage are the most sophisticated.

3.6.4 How the Outcome Was Measured

Because only one study was reported, which is the contingency approach (Baines & Langfield-Smith, 2003), this implies that this study is only concerned with measures of outcome. Organisational performance was measured using the two-part measure developed by Govindarajan (1988), which includes 10 dimensions: return on investment, profit, cash flow from operations, cost control, development of new products, sales volume, market share, market development, personnel development and political-public affairs. The respondents were asked both to compare the change in their business unit's performance over the past three years and to assess these dimensions in terms of their importance to the business unit. Final scores for each dimension were determined by multiplying the respective 'performance' and 'importance' scores. A single performance score for each organisation was calculated as the weighted average of all 10 dimensions.

3.6.5 Discussion of the Results

This subsection gives a review of the results of these studies. Kaplan and Mackey's (1992) study asked whether '*organisations that have a flow shop are more likely to use production cost information to evaluate production managers' performance*' (p.119) or not. They found that organisations using a flow shop exhibited a significantly greater reliance on accounting numbers for evaluation purposes, as opposed to Job shops, using the production cost information for managerial performance evaluation. This may mean that manufacturing technology modifies the costs and benefits attributable to using accounting information for evaluative purposes. For example, the costs caused by

dysfunctional behaviours may be much greater when accounting numbers are used in a job shop environment.

Baines and Langfield-Smith (2003) supposed that there is a positive relationship between the use of advanced manufacturing technology, advanced MAPs and reliance on non-financial management accounting information, leading to improved organisational performance. The results showed that there were no direct associations linking organisation design, technology and advanced MAPs. In addition, the technology does not impact independently either on the reliance on non-financial MAI, or on organisational performance. Rather it works with other organisational factors to influence them as well as the non-financial MAI and performance.

One of Abdel-Kader and Luther's (2008) objectives was to examine the impact of the three types of technology – complexity of production process, advanced manufacturing technology and two advanced techniques, namely, total quality management and Just-in-time on individual organisation's MAPs, and to indicate the extent to which each kind of technology affects the sophistication level of MAPs. The findings supported the hypothesis that MA sophistication was significantly explained by advanced manufacturing technology, total quality management and Just-in-time, whereas they did not support the effect of complexity of the production process on MA sophistication.

Table 3.8 Summary of Technology Studies

Authors, year and country	Variable measured	Characteristics of MAS	Form of fit & statistical technique	Performance measured	Key findings
Kaplan and Mackey 1992 Canada	The type of production process, according to number and categories of product lines, how easy and difficult to estimate the productive capacity and the reasons behind that.	The purposes for costing in production departments. If control of managers is identified as one purpose of costing in production departments or not.	Congruency approach, regression.		A significant effect of the production process variable. There was a greater tendency for flow shops, as opposed to Job shops, to use production cost information for managerial performance evaluation.
Baines and Langfield-Smith 2003 Australia	Use of advanced manufacturing technology, it included nine items: just-in-time production, total quality management, flexible manufacturing systems, computer integrated manufacturing, computer aided design, computer aided manufacturing, materials requirements planning and manufacturing resource planning.	Change in advanced MAP, including ABC, activity-based management, target costing, value chain analysis, benchmarking, product life-cycle analysis, product profitability analysis, customer profitability analysis and quality improvement programs and Changes in non-financial MAI include 19 items about on-time delivery, customer satisfaction, ongoing supplier evaluations, rate of new product introductions, and measures of set-up times.	Congruency approach and contingency approach, interaction form, structural equation modelling.	Organizational performance was measured using the two-part measure developed by Govindarajan (1988), which include 10 dimensions. The respondents were asked both: to compare the change in their business unit's performance over the past three years and to assess these dimensions in terms of their importance to the business unit.	Technology does not impact independently either on the reliance on non-financial management accounting information, or on organizational performance. Rather it works with other organizational factors to influence on them, as well as non-financial MAI and performance.
Abdel-Kader and Luther 2008 UK	Complexity of processing system, it consists of three questions to measure the product line diversity, similarities in the products' design and production, and the existence of major differences between volumes across products and batch sizes.	38 MAPs into one of four levels of sophistication relating to each of IFAC's four stages.	Congruency approach, Kruskal-Wallis one way ANOVA.		There is no significant relationship between processing system complexity and MA sophistication.

3.7 Empirical Studies of Characteristics of Organisation

The literature of the contingency theory of management accounting shows that there are a limited number of studies examining the effect of the variables of characteristics of organisation on MAS. In this review, five studies examined at least one variable of the characteristics of organisation as contingent variable. However, four of these have been reviewed in the previous factors (Abdel-Kader & Luther, 2008; Hoque et al., 2001; King et al., 2010; Libby & Waterhouse, 1996), so there is no need to review them again as most of the criteria reviewed were analysed, and what is needed now is only a discussion of the results. Only one of them (Al-Omiri & Drury, 2007), which examined the impact of organisation size, has not been reviewed previously. Therefore, this section of the review is not in harmony with prior sections. Accordingly, Al-Omiri and Drury's (2007) study is first reviewed, and then the results from other studies are presented.

3.7.1 Al-Omiri and Drury's (2007) Study

A study was conducted by Al-Omiri and Drury (2007) to investigate the extent to which potential contextual factors influence the characteristics of product costing systems. Data were collected from 176 large manufacturing/service organisations in the UK, via a postal questionnaire survey. This empirical work sought to identify the potential contextual factors that could affect the level of sophistication of product costing systems. Two of these contextual factors are organisation size and type of industry. The amount of annual sales turnover was used as a proxy measure of size, and six business categories were included (i.e. manufacturing, financial and commercial, retail, service, conglomerate, other) to examine the impact of type of industry.

The level of sophistication of product costing systems reflects four dimensions: number of first stage drivers, number different types of second stage cost drivers, ABC or traditional costing systems and direct or absorption costing systems. Al-Omiri and Drury (2007) used four different measures as a proxy for level of sophistication of costing systems. The first measure is related to adoption or

which stages towards implementation of ABC (using nine different stages). The second measure concerned the number of cost pools used in the first stage of the two-stage allocation process. The third measure focused on the number of different types of second stage cost drivers. Finally, the results were compared with the dependent variable being categorised by dichotomous variables represented by direct costing and absorption costing systems, to ascertain whether absorption or direct costing systems were used. The contingency theory was applied as a congruency approach in this study to investigate the influence of organisation size and type of industry on the sophistication of costing systems, and logistic regression was used to test the study hypothesis. The results indicate that higher levels of cost system sophistication are positively associated with size of organisation and type of business sector.

3.7.2 Discussion of the Results of Previous Studies

This subsection gives a review of the results of four studies that examined one or more variable of the characteristics of organisation factor and have been previously reviewed (Abdel-Kader & Luther, 2008; Hoque et al., 2001; King et al., 2010; Libby & Waterhouse, 1996). However, all of these studies focused only on organisational size which is measured in various ways.

Libby and Waterhouse (1996) examined the relationship between changes in MACS and organisational size as one of the contextual variables. The number of employees working for an organisation is used as a proxy for organisational size. Libby and Waterhouse (1996) concluded that organisational size did not predict changes in MAS, thus there is no significant relationship between the number of changes and size. It is worth mentioning that this study applied the contingency theory as the congruency approach.

Hoque *et al.* (2001) investigated the relationship between use of multiple measures of performance in manufacturing organisations and business unit size which is measured by its sales revenue. The results of this study show that business unit size appears not to be significantly associated with multiple performance measures usage. Similar to Libby and Waterhouse's (1996) study,

this study also used the congruency approach to explore the relationship between the use of multiple measures of performance and business unit size.

Abdel-Kader and Luther (2008), as indicated earlier, examined the impact of 10 contingent factors on individual organisation's MAPs, to explain the extent to which these factors affect the sophistication level of MAPs. One of these factors is size of organisation which was measured in terms of each organisation's total assets. Their hypothesis was '*Large firms adopt more sophisticated MAPs than small firms*' (p. 7). The hypothesis was supported, so they concluded that differences in MA sophistication are significantly explained by size. Also the congruency approach was adopted by Libby and Waterhouse (1996) and Hoque *et al.* (2001).

Finally, King *et al.* (2010) examined the relationship between contextual factors, the adoption and extent of use of budgets, and business performance within the Australian primary healthcare. The number of employees was used as proxy of business size. The study provided evidence that adoption of written budgets by primary healthcare businesses is positively associated with business size. Moreover, the study showed that organisation's performance is positively associated with the degree of fit between the extent of budget use and its contingent factors. Unlike the other three studies presented earlier, this study applied two approaches of contingency theory: the congruency approach and the contingency approach as a holistic form.

3.8 Limitations of Previous Studies

Based on the empirical literature review presented earlier, several limitations and gaps can be drawn, which the current research and other future researches should bridge, as follows:

- Most of these studies were done in developed countries, while the number of studies conducted in developing countries was limited.

- Most of these studies were conducted on manufacturing organisations, whereas only a few studies were conducted on non-manufacturing or on a mix between manufacturing and non-manufacturing.
- Only a limited number of factors were included in each study; with the exception of those of Libby and Waterhouse (1996), Abdel-Kader and Luther (2008), King et al. (2010), they did not examine the impact of more than three variables in the same study. Libby and Waterhouse (1996) and King et al. (2010) examined the effect of four contingent variables, and Abdel-Kader and Luther (2008) studied ten contingent variables.
- Most of these studies focus on a broad external environment to primarily represent the level of uncertainty that has resulted from many other external variables such as economic or political variables or from specifications and characteristics of external environment such as dynamic, heterogenic and hostile of external environment.
- Although there are at least three important strategic typologies in the literature – Miles and Snow’s (1978) typology, the strategic positioning of Porter’s (1980) typology and the strategic mission of Gupta and Govindarajan’s (1984) – most of these studies are concerned with Miles and Snow’s (1978) typology, Porter’s (1980) positioning and other strategies such as customer-focused strategies that are considered to be the form of product differentiation strategy (one dimension of Porter’s positioning). Therefore, there is no single study from among these studies concerned with the strategic mission of Gupta and Govindarajan’s (1984) typology. In addition, there is no one study that examined more than one typology simultaneously, to compare them in terms of their effect on MAS in order to determine which one is more important for MAS design.
- Organisational structure can be studied by many different dimensions such as centralisation, standardisation, formalisation and configuration; with the exception of Nicolaou’s (2000) study which examined the impact of

formalisation, all these studies are concerned with the influence of centralisation/decentralisation on MAS.

- Although the contingency perspective emphasises the organisation's technology as an important contingent factor that is considered to have an effect on the design of organisations in general, and that of the operating core in particular (Otley, 1980) as well, it could be more problematic to study the organisation level of analysis (Ramirez & Fornerino, 2007); only three of these studies investigated the effect of technology.
- There are a limited number of studies examining the effect of the variables of the characteristics of organisation on MAS. In addition, none of them examine the effect of the age of the organisation or the type of ownership and only one study investigated the impact of type of industry (Al-Omiri & Drury, 2007).
- Due to the lack of clarity in the contingency theoretical statements, as indicated in the above review, contingency theory has been applied in many ways; however, most of the researchers have not found a strong basis for their choice. For example, the researchers who chose MAS as moderator variable rather than mediator variable did not specify why they used this model, and vice versa. Hence, what they chose may not be valid. In context, previous researches have stated that major researchers are not aware of the implications of these different approaches and the difficulties related to these approaches towards each other (Gerdin & Greve, 2004, 2008; Schoonhoven, 1981; Venkatraman, 1989).
- This lack of awareness of the implications of these different contingency theory approaches has led to a lack of clear methods in empirically testing the contingency approach and then interpreting the results, where some studies have compared their results with the results of other studies despite this comparison not appearing to be valid.

- Most of these studies either examined the characteristic of MAPs information or performance measures, while a few of them examined the MAPs themselves.
- Because these studies were not exactly identical with one another whether in applying the contingency theory, measuring the contingent factors or choosing MAS, they have therefore not yet provided a clear picture about the relationship between MAS and contingent factors.

3.9 Summary and Conclusion

This chapter has reviewed the extant literature that contributes to our knowledge regarding MAS and the use of contingency theory, with a particular emphasis on the effect of external environment, business strategy, organisational structure and technology on MAS design. These contextual factors were chosen because they are the most common factors suggested in the literature (Gordon and Miller, 1976; Waterhouse and Tiessen, 1987; Otley, 1980; Gordon and Narayanan, 1984; Chenhall and Morris, 1986; Simons, 1987; Dent, 1990; Langfield- Smith, 1997; Sim and Toeh, 1997; Chong and Chong, 1997; Chenhall, 2003), although this does not mean that other factors such as culture are not important or less important. Although significant progress has been made in relation to the relationship between contextual factors and MAS, this review has identified a set of limitations of previous empirical studies, to indicate that much work remains to be done.

The next chapter draws off the literature review in the preceding two chapters in order to discuss and build the research framework and methodology for this study.

Chapter Four

Research Methodology

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4.1 Introduction

The previous chapters have provided a review of the literature to support this study. This chapter presents a thorough discussion of the theoretical and empirical literature review which was included in the previous two chapters (i.e. Chapters Two and Three). The aims of this chapter are to justify the reasons for undertaking this study and to develop the hypotheses that will be tested in Chapter Seven. This is primarily based on the key findings, limitations and recommendations from the literature review of management accounting in general, and based on contingency theory in particular, to bridge the gaps identified in the existing literature. In addition, the study hypotheses which will be tested in Chapter Seven are formulated. The second aim is to describe the research philosophy and methodology that have been adopted and the methods and procedures that have been conducted to collect the research data.

4.2 Research Aim and Objectives

As indicated in Chapter One, this study aims to examine the effectiveness and relationship between selected contingent factors and MAPs in Libyan companies. To achieve this main aim, the following objectives are set for this research study:

1. To determine what MAPs currently exist in Libyan companies.
2. To determine the purposes of MAPs usage in Libyan companies and the level of satisfaction with them.
3. To examine the relationship between contingent factors and MAPs in Libyan companies.
4. To examine the relationship between contingent variables and organisational performance through MAPs in Libyan companies.
5. To investigate management accountants' perceptions of the relationship between contingent factors and MAPs.

4.3 Justification for MAPs Used in This Study

A variety of aspects of MAS have been focused on in contingency theory literature. These include dimensions of management accounting information, such

as external, non-financial and future-oriented information (Gordon & Narayanan, 1984) and information characteristics (scope, timeliness, aggregation and integration) (Chenhall & Morris, 1986; Chong & Chong, 1997; Gul, 1991; Gul & Chia, 1994; Soobaroyen & Poorundersing, 2008). Some studies focus on styles of performance measures, namely using financial and non-financial measures (Hoque, 2004, 2005; Hoque et al., 2001; Hyvönen, 2007; Perera & Poole, 1997). The extent of changes in MAS were the subject of one such study, some studies focused on traditional MAP(s) or movement towards advanced MAP(s), whether within those traditional MAPs (Libby & Waterhouse, 1996) or changing in advanced MAP such as activity-based costing, activity-based management and target costing (Al-Omiri & Drury, 2007; Baines & Langfield-Smith, 2003). Styles of budgeting, cost consciousness and level of sophistication have also been studied (Abdel-Kader & Luther, 2008; Chenhall & Langfield-Smith, 1998a; Govindarajan, 1988; Kaplan & Mackey, 1992; King et al., 2010).

In addition, it is noted from the literature of MA research that some researchers focused their studies on a single MAP, mainly budgeting, activity-based costing (ABC) (Bjørnenak, 1997; Malmi, 1999), balanced scorecard (Ax & Bjørnenak, 2005; Jusoh, Ibrahim, & Zainuddin, 2006; Malina & Selto, 2001), and performance measurement in both financial and non-financial measures (Chenhall, 1997; McAdam & Bailie, 2002; Perera & Poole, 1997; Said, HassabElnaby, & Wier, 2003; Van der, Chow, & Lin, 2006). Others explored a broad range of MAPs, including both traditional and contemporary practices, such as Abdel-Kader and Luther (2008) and Chenhall and Langfield-Smith (1998a).

After reviewing the management accounting literature using a contingency theory perspective (i.e. Chapter 3), MAPs in a Libyan context (i.e. Chapter 1) and the most popular textbooks in this field such as Drury (2008) and Zimmerman (2000), this study identifies and classifies three specific MAPs categories: costing, budgeting, and performance measurements practices. The reasons are:

- The most popular textbooks which include Kaplan and Atkinson (1998), Bhimani, Horngren, Datar, and Foster (2008), Drury (2008), Zimmerman (2000), Atkinson, Banker, Kaplan, and Young (2001), and Horngren,

Sundem, Stratton, Burgstahler, and Schatzberg (2002) emphasise the practices mentioned above.

- The applicability of these practices in Libyan companies as shown by Alkizza's (2006) and Leftesi's (2008) studies. On the other hand, most of the MAS models examined in the contingency theory studies were undertaken in developed countries where the MAPs are more sophisticated, so they may not apply in Libya's conditions as a developing country where the MAPs are still relatively less used, even compared with other developing countries (Alkizza, 2006; Leftesi, 2008); for example, some studies examine the dimensions of MA information, such as scope of information, focusing on financial, non-financial, external and future-oriented information, and some are concerned with advanced MAPs, such as activity-based costing, activity-based management and target costing (Al-Omiri & Drury, 2007; Baines & Langfield-Smith, 2003).
- Some of these traditional and advanced techniques have been adopted by many studies of MAPs (for example, Alnamri, 1993; Drury, Braund, Osborne, & Tayles, 1993; Drury & Tayles, 1994; Firth, 1996; Hutaibat, 2005), and even by contingency based studies (for instance, Abdel-Kader & Luther, 2008; Chenhall & Langfield-Smith, 1998a; Haldma & Laats, 2002; Luther & Longden, 2001).

4.4 Justification for Contingency Theory Approaches Used in This Study

A contingency perspective to study MAS has been widely used in management accounting research (Gordon & Narayanan, 1984; Sim & Killough, 1998). Contingent variables have been mainly used in previous studies to explain observed different characteristics of MAS. In light of the previous discussion in Chapters Two and Three, this stream of research, however, has a number of limitations. First, it considers only one or a very few variables. Second, it does not pay sufficient attention to the difference of the hypothesised fit between contingent variables, MAS, and organisational and managerial performance (Drazin & Van de Ven, 1985; Gerdin & Greve, 2004; Tillema, 2005). A strong

body of literature suggests that a bivariate and multivariate interaction approach helps to assess the combined effect of two or more independent variables on a dependent variable (Drazin & Van de Ven, 1985; Govindahajan, 1986; Gul, 1991). However, the congruence approach, called the selection approach (Drazin & Van de Ven, 1985) helps to recognise the contextual factors which influence the organisational structure, and it is helpful in exploring the character of the context of relations between the context-structures without investigating whether the performance has been affected or not. Hence the suggestion by Gerdin and Greve (2004) that future theory building and testing in the MA area would benefit if the two approaches are used together so that researchers can explore and contrast the predictive power of each approach.

Based on the argument above, this study seeks to provide a significant contribution in applying contingency theory in two ways: firstly, by including a large number of contingent factors, with many different aspects of each factor being considered (more details appear in the next subsection); and secondly, by applying two contingency theory approaches/forms, namely a congruence approach, which examines the relationship between contingent factors and MAPs, and an interaction form of the relationship among contingent factors, MAPs and organisational performance. The interaction form of contingency theory can be applied as a moderation or mediation model. Both models may be valid, but in a particular condition, only one model can give a precise picture (Gerdin & Greve, 2004). A mediation model supposes that context variables are antecedent variables affecting MAPs' quality and sophistication (Soobaroyen & Poorundersing, 2008). According to Gerdin and Greve's (2004) statement, the basic assumption of the mediation model is that the mediator variable, which here is MAPs, is related to the independent variable, namely contingent factors, so in this case the moderation model is invalid. Therefore, as mentioned in Chapter Two, the traditional objection to the moderation model is the alleged problem that the hypothesis of independence between contingent variables, such as strategy and size of organisation, and MAS (as the moderator variable), is actually incorrect; hence they are associated. Consequently, the claim that a new impact arises as a result of the interaction between contingent variables and MAPs as a key assumption of the

moderation model is incorrect. The mediation form identifies the presence of an intervening (indirect) impact between the independent variable and the dependent variable through a third variable, called the mediation variable (Venkatraman, 1989). This indicates that, unlike the moderation model, the mediation model permits MAPs to be contributors to the dependent variable (i.e. performance), as well as possibly for the MAPs to be dependent on other variables which are independent (i.e. contingent factors).

In the light of these suggestions, this study will adopt empirical testing for an intervening/mediating model, whereby MAPs are an intervening variable between a number of antecedent variables and organisational performance. Indeed, when the relationship between antecedent variables and organisational performance exists at least partly through MAPs, then MAPs play this mediating role between the other two variables (Chong & Chong, 1997; Hoque, 2004; Soobaroyen & Poorundersing, 2008).

4.4.1 Hypotheses of Congruence Approach of the Relationship between Contingent Factors and MAPs

This relationship is the simplest form of the relationship between contingent factors and MAS. According to this form, contingent factors should be considered when MAPs are designed. In this sense, the contingency theory assumes that MAPs depend on contingent factors without any examination of whether this relationship affects performance. Therefore, the MAPs are hypothesised to be the results of contextual factors. The most positive thing in this form is that it clearly indicates a part of the overall relationship between MAPs and contextual factors without going into complex and interrelated relationships, as it exists in interaction or holistic forms. This may be why this form has received significant attention in management accounting research (Abdel-Kader & Luther, 2008; Bouwens & Abernethy, 2000; Chenhall & Morris, 1986; Gordon & Narayanan, 1984; Hoque, 2004; Libby & Waterhouse, 1996). Based on this argument, the current research will adopt this form as a first step to investigating contingency relationships.

This part of the research theoretical model consists of five sets of research constructs or factors that might affect the extent of usefulness of MAPs. These variables are: the external environment, business strategy, organisational structure, technology and characteristics of organisation. As the measurement of contingency variables remains controversial (Larcker, 1981), the instruments used in this study are based on the contingency theory and management control literature. Thus, the conceptual definitions of these contingent variables are discussed briefly in the following sub-sections. Afterwards, the hypotheses relating to the relationships between these contingent factors, MAPs and organisation will be formulated.

External Environment

Referring to our discussion in Chapter 3 (Section 3.2.1), the contingency theory literature has regarded the external environment as the primary source of constraint upon the organisational design in general and MCS design in particular (Child, 1972; Otley, 1999).

As mentioned in Chapter 2, three environmental dimensions can be inferred from the work of organisational theorists such as Duncan (1972), Khandwalla (1972) and Teo and King (1997): dynamic dimension (changeability and predictability), heterogeneous dimension (complexity) and hostile dimension (the scarcity of resources and the degree of competition). These three attributes of the external environment are likely to have a substantial impact on management accounting design. However, most of these studies, reviewed in Chapter 3, focus on the broad external environment to primarily represent the level of uncertainty that has resulted from many other external variables, such as economic or political variables, or from specifications and characteristics of the external environment, such as the dynamism, heterogeneity or hostility of the external environment. Examples include unpredictable shifts in the economy, rapidly changing technology, and unexpected changes in customer demand, competitors' actions or sources of supply (Govindarajan, 1984; Miles & Snow, 1978; Mintzberg, 1979). On the other hand, some researchers of organisational environments have

considered dynamic, heterogeneous and hostile dimensions of the environment as sources of environmental uncertainty.

Gordon and Miller (1976) argue that when there is a high level of environmental uncertainty as a result of dynamism and hostility, the organisation tends to adopt large amounts of information. In addition, the different types of competition (certainty or uncertainty, static or dynamic, etc.) have different impacts on the management accounting techniques. In this context, it is argued that the level of sophistication of MAS is influenced by the type of environment, and managers may need additional information to manage uncertain, dynamic, complex or turbulent environments. Thus, when organisations work in an uncertain business environment, more sophisticated management accounting information will be required (Chenhall & Morris, 1986; Gul & Chia, 1994; Mia & Chenhall, 1994; Mia & Clarke, 1999; Mia & Patiar, 2001). Others argue that external environment variables do not have a direct influence on the MAS (Baines & Langfield-Smith, 2003; Bruggeman & Slagmulder, 1995; Chapman, 1997). Based on the results of previous empirical studies (see Chapter 3, subsection 3.3.5), it can be hypothesised that:

There is a relationship between the external environment and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement. In this context, usefulness means the combination of level of usage and level of meeting expectation*.

- **H1:** The degree of dynamism of the external environment impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.
- **H2:** The degree of heterogeneity of the external environment impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

* See section D, E and F in the questionnaire

- **H3:** The degree of hostility of the external environment impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

Business Strategy

Business strategy refers to how a business unit competes in its market to achieve a competitive advantage (Porter, 1980). It has been found that there are at least three strategic typologies: Miles and Snow's typology (1978) Porter's typology (1980) and Gupta and Govindarajan's typology (1984). As defined in the strategy literature, a defender, harvest or cost leadership strategy focuses on being the low cost producer of a narrow product range. This implies that little product and market development is undertaken. In contrast, a prospector, build or differentiation strategy focuses on being first-to-market, with a variety of innovative products or services.

The results of studies that adopt Miles and Snow typology, which were reviewed in Chapter 3, are consistent and support each other (Abernethy & Guthrie, 1994; Chong & Chong, 1997; Hoque, 2004). Abernethy and Guthrie (1994) find that a broad scope of information is more effective in organisations adopting a prospector strategy than organisations adopting a defender strategy. Chong and Chong (1997) state that "*strategy is important antecedents of MAS design, and that broad scope MAS information is an important antecedent of SBU performance*" (p. 268). Similarly, Hoque's (2004) results show a significant and positive indirect relationship between strategic choice and performance via high use of non-financial measures for performance evaluation.

In terms of Porter's (1980) typology, the previous chapter indicates that MAS as applied by these studies play an important role in the promotion of business strategy (Chenhall & Langfield-Smith, 1998a; Govindarajan, 1988; King et al., 2010). On the other hand, Abdel-Kader and Luther (2008) emphasise that sophistication of MAPs is not associated with business strategy, so the business strategy cannot explain the differences in MAPs.

Overall, these studies have not been able to draw a clear picture of the relationship between kind of business strategy and MAPs. In addition, the literature of management accounting and business strategy has not clarified the relationships between these strategic typologies, namely Miles and Snow typology (1978) Porter typology (1980) and Gupta and Govindarajan (1984) typology, and which one of them has a greater impact on MAS. Therefore, none of the studies reviewed in Chapter Three examine more than one typology simultaneously to compare them in terms of their effect on MAS to indicate which one is more important for MAS design. Abdel-Kader and Luther (2008) argue that these classifications are not significantly different and can be reconciled with prospectors/builders/product differentiators at one end of a continuum and defenders/harvesters/cost-leaders at the other end. Thus, the current study intends to examine the association between these three types of typologies, MAPs and organisational performance, within direct and indirect relationships:

It is hypothesised that there is a relationship between business strategy and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

- **H4:** The degree of strategic mission impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.
- **H5:** The degree of strategic competitive advantage impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.
- **H6:** The degree of strategy in the rate of change in products or markets impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

Organisation Structure Factor

With regards to organisational structure, Otley (1980) argues that accounting systems depend upon the specific organisational structure of the organisation. By

adopting a particular structure, certain kinds of control systems and relationships will be encouraged, while others will be discouraged. An early study by Bruns and Waterhouse (1975) explores the interaction and relationship of organisational structure and budgets. The study reports that the relationship between organisation context, organisation structure and budget-related behaviour are consistent with the view that organisation control strategies may be dichotomised into two general categories, decentralised but structured, and centralised. Therefore, choice or change in organisational structure might be a means of change in the organisational budgetary control system.

More recently, the previous review indicates that some studies report that decentralisation significantly interacts with each of the MAS information characteristics to positively enhance performance (Chia, 1995). Soobaroyen and Poorundersing (2008) specify that decentralisation has an effect on the characteristics of MAS and managerial performance through the availability of broader scope, timely, highly aggregated and highly integrated MAS. Abdel-Kader and Luther (2008) support their hypotheses that “Firms characterised as decentralised adopt more sophisticated MAPs than firms characterised as centralised” (p. 7). Chenhall and Morris (1986) show a significant association between aggregated and integrated information and decentralisation, whereas scope and timely information were not significantly associated with decentralisation. In addition, Gordon and Narayanan (1984) report that an organisation’s information system and structure are not significantly related to each other. However, as mentioned in Chapter Three, all the reviewed studies focus on the impact of decentralisation on MAS, except Nicolaou’s (2000) study, which examines the impact of formalisation, whereas organisational structure can be studied through many different dimensions such as centralisation, standardisation and formalisation. In the light of the foregoing discussion, it is hypothesised that:

There is a relationship between organisation structure and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

- **H7:** The degree of centralisation impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.
- **H8:** The degree of formalisation impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

Technology Factor

An organisation's technology has been emphasised as an important contingent factor that is expected to have an impact on the design of organisations in general and the design of the operating core in particular (Otley, 1980). Likewise, Merchant (1984) points out that the degree of automation in the production process, which is considered as one of the major characteristics of the new manufacturing technology, has a positive impact on the formality of budget systems used. Kaplan and Mackey (1992) find that a flow shop exhibited a significantly greater reliance on accounting numbers for evaluation purposes, while job shops rely on production cost information for managerial performance evaluation.

Furthermore, Abdel-Kader and Luther (2008) find that advanced manufacturing technology, total quality management and just-in-time as dimensions of organisational technology significantly explained MA sophistication, whereas the effect of the complexity of the production process on MA sophistication was not significant. In addition, Baines and Langfield-Smith (2003) show no direct associations linking organisation design, technology and advanced MAPs, and that technology does not independently affect either the reliance on non-financial management accounting information or organisational performance. However, it appears from the aforementioned review in Chapter Three that there are limited studies which apply the contingency theory that have sought to uncover the impact of technology. We therefore state:

There is a relationship between technology and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

- **H9:** The degree of product complexity impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.
- **H10:** The degree of customisation impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

Characteristic of Organisation Factor

Characteristics of an organisation have been considered as an important contingent variable affecting control systems, including many variables such as size, age and ownership of organisation, and type of industry. Nevertheless, most early studies investigate these variables as decisive for organisational structure (Child, 1973; Ezzamel & Hart, 1987; Inkson *et al.*, 1970; Khandwalla, 1977; Mintzberg, 1979). It is noteworthy that the literature of management accounting reports limited findings about the relationship between these variables and MAS. For example, Chenhall and Langfield-Smith (1998a) and Joshi (2001) indicate that large organisations are more able to make changes in their accounting system because they may be able to invest in developing new accounting. Dent and Ezzamel (1987) find no relationship between the age of organisations and the degree of MAS sophistication, while Scapens and Yan (1993) report a negative relationship between government ownership and accounting information systems. In their comparison, Guilding, Lamminmaki, and Drury (1998) find no systematic relationship between industry type and budgeting and standard costing practices.

The literature of contingency theory of management accounting shows that a limited number of studies examine the effect of the variables of characteristics of organisation on MAS, and most of them focus on organisation size. Libby and Waterhouse (1996) indicate that organisation size and the number of changes in MAS are not associated. The results of the study by Hoque *et al.* (2001) show that business unit size appears not to be significantly associated with multiple performance measures usage. Conversely, it was found that size of organisation explained MA sophistication (Abdel-Kader & Luther, 2008). Finally, King *et al.*

(2010) provide evidence that adoption of written budgets is positively associated with business size. Based on the above, it is hypothesised that:

There is a relationship between characteristics of an organisation and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

- **H11:** Age of organisation impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.
- **H12:** Organisation size impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.
- **H13:** Kind of industry impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.
- **H14:** Type of ownership impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

4.4.2 Hypotheses of Contingent Approach of the Intervening Role of MAS

Thus far, it has been suggested that contingent factors such as business strategy and external environment may induce managers to use MA information for decision-making. In other words, MA information can have impact on the relationship between contingent variables and organisational performance. This implies that MAPs may act as an intervening construct between contingent variables and organisational performance. Therefore, the present study will go further to examine the relationship among MAPs, contingent factors and organisational performance using an interaction form of mediation model. However, unless the hypotheses related to relationships between contingent factors and MAPs are examined and a significant relationship found, the hypotheses related to effect of contingent factors on organisational performance through MAPs cannot be formulated. Because of the basic assumptions of the existing indirect effect of contingent variables on organisational performance through MAPs exist a direct relationship between contingent variable and MAPs

and between MAPs and organisational performance (Gerdin & Greve, 2004). Hence, the hypotheses related to effect of contingent variables on organisational performance through MAPs will be formulated and presented in Chapter Six, first study for testing the relationship between contingent factors and MAPs.

4.5 Research Philosophy

Research philosophy, which depends on epistemological and ontological assumptions, is the primary determinant of appropriate research methodology. Researchers, within their views about the nature of reality applied to the phenomenon (ontology), hold various assumptions, which play a role in how the researchers acquire the knowledge about that phenomenon (epistemology). Ultimately, the acquisition of the knowledge will affect how the research should be conducted, and its methodology and methods for data collection (methodology) (Creswell & Clark, 2007; Ryan, Scapens, & Theobald, 2002).

It is acknowledged the assumptions at research design can be derived from one of two research philosophies or paradigms (Collis & Hussey, 2009; Easterby-Smith, Thorpe, & Lowe, 2002). These two extremes are positivism and phenomenology:

4.5.1 Positivism

The positivism philosophy depends on scientific approach (Frankfort-Nachmias & Nachmias, 2000; Sekaran, 2000) and quantitative paradigm (Collis & Hussey, 2009; De Vaus, 2001; Douglas, 1976). Saunders, Lewis, and Thornhill (2009) state that this philosophy has been widely used in management and business research, as result of the philosophical stance of the natural scientist. The research based on this philosophy perspective seeks to produce causal relationships or laws.

Remenyi, Williams, Money, and Swrtz (1998, p. 32) reveals that '*working with an observable social reality and believe that the end product of such research can be law-like generalizations similar to those produced by the physical and natural scientists*'. This implies that one assumption of this perspective is that the researchers are independent of what they study and are value-free in choosing

what to study and how to study it, including the methods of data collection and analyse. In addition, a large and sufficient sample size is required for generalization purposes, because a large sample allows the investigators to draw appropriate conclusions and for it to be representative of the wider population. Hypothesizing and deduction are used to identify causal explanations (Easterby-Smith *et al.*, 2002). Furthermore, this research paradigm depends on splitting the problems into the simplest possible units (reductionism) rather than analysing them as holistic view or a whole situation. Also, a large and sufficient sample size gives high attention to structured methodology, operationalisation and statistical analysis for allowing replication (Saunders *et al.*, 2009).

Table 4.1 Research Implication of Positivism (adopted from Easterby-Smith *et al.*, 2002)

<i>Implications</i>	<i>Description</i>
Methodological	All research conducted using this philosophical approach should be quantitative. Only quantitative research can be the basis for valid generalisations and scientific laws.
Value-freedom	The choice of what to study and how to study it should be determined by objective criteria rather than human experiences, beliefs or interests.
Causality	Its main aim is to identify causal relationships and fundamental laws that explain human behaviour
Deduction	Hypotheses are proposed based on a logical deduction process.
Operationalisation	Concepts or variables under study need to be operationalised in a way that enables facts to be measured quantitatively
Independence	The role of the researcher is independent of the subject under examination.
Reductionism	The phenomenon under study is better understood if it is reduced to the simplest possible elements.

Table 4.1 indicates the claims of positivistic research. Based on the above implications, this research has been conducted using this philosophy perspective, because:

- A review of contingency theory, contingent factors and MAPs literature was conducted.
- The research hypotheses were proposed (see section 4.4.1).

- The population and sample frame were determined. It was decided that the study will be on Libyan companies.
- The research instrument and the operationalisation of the study variables were developed and, a pilot study has been used to test these means.
- The statistical tests for data analysis were determined. The data will be tested using simple regression, multiple regression and mediation regression analysis for indirect effect (interaction effect).
- Finally, the research data will be collected in the next stage and analysed, and a conclusion will be reached.

4.5.2 Phenomenology

This paradigm has been known in the literature under different names such as constructivist, constructivism or interpretivism paradigm (Collis & Hussey, 2009). It is “*a theoretical point of view that advocates the study of direct experience taken at face value; and one which sees behavior as determined by the phenomena of experience rather than by external, objective and physically described reality*” (Remenyi *et al.*, 1998, p. 34). This paradigm attempts to understand how people make sense of their worlds, with human action being conceived as purposive and meaningful (Gill & Johnson, 2002). Therefore, the researchers should focus on understanding and explaining people’s different experiences rather than focusing on causal relationships or laws through external factors including fundamental laws (Easterby-Smith *et al.*, 2002). Moreover, the researchers in this kind of research have explicit or implicit ideas, which play fundamental role in their interpretation and the sense-making process (Collis & Hussey, 2009).

Unlike positivism philosophy, this research paradigm, which depends on splitting the problems into the simplest possible elements (reductionism), is used to examine a whole multifaceted phenomenon (Remenyi *et al.*, 1998). Furthermore, Saunders *et al.* (2009) reveal that statistical generalization is less valuable and less important in this paradigm, as it is thought each research case is unique and difference from other research cases.

Table 4.2 distinguishes between Positivism and Phenomenology philosophy.

Table 4.2 The Differences between Positivism and Phenomenology

	<i>Positivism</i>	<i>Phenomenology</i>
The observer	must be independent	is part of what is being observed
Human interests	should be irrelevant	are the main drivers of science
Explanations	must demonstrate causality	aim to increase general understanding of the situation
Research progresses through	hypotheses and deductions	gathering rich data from which ideas are induced
Concepts	need to be operationalized so that they can be measured	should incorporate stakeholder perspectives
Units of analysis	should be reduced to simplest terms	may include the complexity of 'whole' situations
Generalization through	statistical probability	theoretical abstraction
Sampling requires	large numbers selected randomly	small numbers of cases chosen for specific reasons

Source: Easterby-Smith *et al.* (2002, p. 30)

In sum up, the research model of this research represents the relationships between MAPs and contingent factors that affect organisational performance. The study will be carried out by targeting a large number of Libyan companies through the use of a questionnaire, and supplemented by interviews with limited number of companies. The other objective of these interviews will be to gain further information and explanations about the relationship between contingent factors and MAPs and possible explanations for why this relationship is either found or not, which may lead to new issues and ideas that can be investigated in the future. This would be an important source of triangulation and confirmation of the survey. Scientific methods such as those in statistical packages will be used for analysing the data, and appropriate qualitative data analysis. Hence, the philosophy underpinning this research is between two extreme ends of the philosophical paradigms; however, it is located much closer to positivism than to phenomenology. This is still in the mainstream accounting research and is conducted based on scientific method and a quantitative approach supplemented by appropriate qualitative research methods.

4.6 Research Approach

The literature reveals that there are two research approaches, deductive approach (testing theory) and inductive approach (building theory).

4.6.1 Deductive Approach

According to this approach, the research begins with premises which are used to work towards a logical conclusion (Williams & May, 1996). The theory testing approaches start from the general to reach the particular (De Vaus, 2001). This kind of research is launched by developing hypotheses using the theory, collecting data, testing the hypotheses, and supporting or modifying the theory if required (Creswell, 2003). Deductive theories reach at their reasoned conclusions by applying reasons to a given set of premises (Sekaran, 2003). Therefore, the deductive research is in line with the positivism paradigm and quantitative research strategies (Saunders *et al.*, 2009).

4.6.2 Inductive Approach

Williams and May (1996, p. 22) defined induction as '*the derivation of a general principle or possibly a law in science, which is inferred from specific observations*'. The inductive research process starts from collecting data, analysing the data by trying to make sense of it, and formulating the theory. The researcher here, looks for patterns in the data and, in particular, relationships between variables. Induction is a process where we observe certain phenomena and on this basis arrive at conclusion. In other words, in induction we logically establish a general proposition based on observed facts. Generalisations in this type of research are sought from specific to other, wider context, as opposed to deductive research strategies. This type of research and theory is usually, but not exclusively, consistent with the phenomenology that underpins this research.

Based on the above argument, the current research is designed mostly on the deductive approach since the hypotheses are developed based on the literature of contingency theory and MAPs. Quantitative data and statistical packages will be used for hypotheses tested. However, some interviews will be conducted with

several of the case Libyan companies to gain better and deeper understanding about the context.

4.7 The Research Type

The choice of a certain research paradigm or philosophy leads the researcher to implement a specific research design. In the literature, there are several classifications of research types.

For example, the research can be classified according to the research purposes, which are exploratory, descriptive, explanatory or analytical research. Hussey and Hussey (1997, p. 10) state that exploratory research “*is conducted into a research problem or issue when there are very few or no earlier studies to which we can refer for information about the issue or problem*”. Therefore, this research is conducted by searching for patterns, ideas or hypotheses, rather than testing or confirming a hypothesis. Descriptive research aims to describe certain events or phenomena through the collection of facts and information. In addition, descriptive research is used in order to describe the special circumstances of these phenomena and events by using multiple methods such as observation, interview and questionnaire. Conversely Zikmund (1991, p. 32) mentions that the descriptive research aims to determine the answers to “who, what, where, and how questions”. As continuation of descriptive research, an analytical or explanatory research goes beyond merely describing characterises, to analyse and explain why or how it is happening (Collis & Hussey, 2009).

Based on this classification, this research could be classified as descriptive and explanatory. The first two objectives, which are related to the current MAPs used in Libyan companies, the purposes and level of satisfaction with them, as well as the fifth objective, which indicates management accountants’ perceptions of the relationship between contingent factors and MAPs, can be classified as descriptive. The third and fourth objectives, which attempt to identify the relationship between contingent factors, MAPs and organisational performance in Libyan companies can be classified as explanatory or analytical research.

In addition, Sekaran (2000) revealed that the type of investigation is one other categorisation that might be used to classify the studies. According to this categorisation, research might be classified as either correlational research, causal research or both. Correlational studies are concerned with the association between variables whereas causality studies are interested in cause-and-effect relationships. Based on this classification, and consistent with the research objectives, this study is classified as a causal study.

Moreover, Easterby-Smith *et al.* (2002) and Cooper and Schindler (2006) illustrate that studies might be classified based on time horizon, which indicates whether the study is longitudinal or cross-sectional. In longitudinal studies, the data are collected at different times rather than one point in time, whereas, in cross-sectional studies the data are collected all at the same time. Cross-sectional studies use the survey method (Easterby-Smith *et al.*, 2002). This research has been conducted at one point in time, so it is a cross-sectional study.

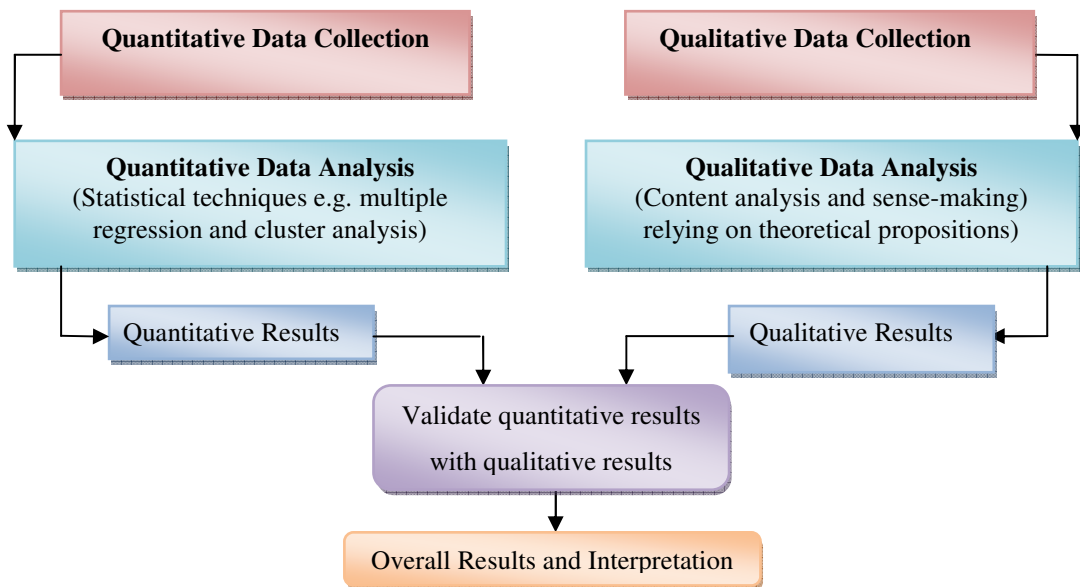
4.8 Research Strategies and Data Collection Methods

Many research strategies have been suggested in the literature such as experiment, survey, case study, grounded theory, ethnography and action research. However, in general, there are no methods or research strategies that are suitable for all types of research, but every research type requires one or more suitable research strategy or data collection methods (Remenyi *et al.*, 1998). Research philosophy, research approach and research type determine the research strategy and data collection methods for achieving research objectives (Saunders *et al.*, 2009).

It is argued that each research strategy has its own advantages and disadvantages, but some researchers claim that a mixture of research strategies gives more perceptions of the issues or problems being considered as well as strengthening the credibility of the research conclusions (Douglas, 1976). The combination between quantitative and qualitative approaches will make the findings support each other and providing more understanding and insight into the context or setting (Creswell & Clark, 2007). In this context, numerous researchers such as Easterby-Smith *et al.*, (2002), Van der Velde, Jansen and Anderson (2004) and

Collis and Hussey (2009) reveal that in-depth interviews are a good instrument for obtaining qualitative data that complement data gained from a questionnaire survey.

Figure 4-1The Triangulation Design of Data Collection



Source: adapted from Creswell and Clark (2007, p. 63).

Therefore, this study will adopt a triangulation approach combining a survey and case study interviews. The data related to MAPs currently used and their purposes in Libyan companies, and data for testing the hypotheses based on contingency theory will be collected by questionnaire, while, at the same time some interviews will be carried out while, at the same time some interviews will be carried out to explore and understand the research issues as well as it will be useful in terms for validating the questionnaire (Bryman & Bell, 2007). Figure 4.1 shows the triangulation design of data collection in this study.

4.8.1 Questionnaire

Although, there are several data collection methods related to a survey strategy such as questionnaire, structured observation and structured interview, the questionnaire is one of the most widely used techniques to collect the required quantitative data especially in business and management research (Saunders *et al.*, (2009). It is usually associated with positivistic research testing hypotheses

based on theory (Ryan *et al.*, 2002), which is also related to the deductive approach. Moreover, it can be seen from the literature review in Chapter 3 that the majority of management accounting research based on contingency theory was undertaken through a questionnaire survey. The questionnaire method has various advantages such as the ability to perform the research on a large number of respondents, reasonable costs, and providing easy comparison. On the other hand, it has several issues of concern such as the clarity of questions in the questionnaire and the appropriate number of respondents (Collis & Hussey, 2009; Saunders *et al.*, 2009), which need great care and focusing when preparing the questionnaire.

There are many types of questionnaire according to the method of its distribution, including on-line questionnaire, post/mail questionnaire, telephone questionnaire and individual distribution/self-administered questionnaire.

A self-administered questionnaire is adopted in this study, for the following reasons:

- This method can be used to conduct a large-scale survey within a reasonable cost.
- It can improve the response rate and completed questionnaires can be collected in a short period of time by using the benefits of personal contact, through motivating the participants and highlighting the importance of their participation.
- It gives the researcher the opportunity to introduce the research topic, to encourage the respondents to provide their answer honestly, to clarify any ambiguous questions.
- Lack of reliable Libyan postal services, which makes it inadvisable to use a postal questionnaire.
- Inability to get or find out the correct personal details of targeted respondents (e.g. email, telephone number), which hampers the use of email or telephone questionnaires.

- This method shows the keen interest of the researcher, which encourages the respondents' solidarity with him.

Finally, the literature review and relevant previous research will be used to construct the questionnaires, which will be posted to Libyan companies including a covering letter informing the respondent of the importance of the study, its objectives, what it will be used for, and the benefits from the participation. Confidentiality will be guaranteed to the respondents as well as a copy of the final report.

4.8.2 Interviews

Although an interview is more associated with phenomenological paradigms and is a common instrument for interpretive research, it could also be associated with positivistic paradigms. An interview can be structured, semi-structured or unstructured; structured interviews are associated with a positivistic approach, while unstructured, semi-structured interviews are used in phenomenal paradigms (Collis & Hussey, 2009). In addition, Saunders *et al.* (2009) linked each type of interview with the type of research, suggesting that in an exploratory and explanatory study, in-depth/unstructured and semi-structured interviews can be very helpful.

As mentioned earlier, the use of survey-based methods and statistical packages have dominated contingency-based research (see chapter 3). However, there are a number of justifications for using more qualitative and interpretive research (Ryan *et al.*, 2002):

- There is an increasing use of the case study interview in recent management accounting research (Ryan *et al.*, 2002), to get advantages from the facility of triangulation (see Anderson & Lanen, 1999; Saunders *et al.*, 2009).
- The interviews provide deeper understanding into the context of the research, ability to generate the answers to 'how' and 'why' questions, and allow multiple methods (Saunders *et al.*, 2009).

- They are useful as tools for understanding the construct that the interviewee uses in relation to their views and beliefs about the topic under consideration (Easterby-Smith et al., 2002), and enable the researcher to observe the respondent answering.
- Remenyi et al. (1998) considers interviews may allow the researcher to feel a degree of intimacy with the interviewee as well as provide opportunities for the researcher to visit the organizations.
- To obtain more information and suggestions.

Therefore, semi-structured interview are chosen to be conducted with some of the survey respondents in this research in order to learn more about the research issues, with specific emphasis on the influence of contingent factors on MAPs in general and on their companies in particular, and to strengthen the validity of the research findings from the survey. Thus, data collected from interviews are used to help in meeting the third and fifth objectives of this research (see Section 4.2).

4.9 Research Population and Sample

The population of this research is defined as all Libyan companies both manufacturing and non manufacturing, whether small, medium or large companies, except very small companies that have fewer than 50 employees such as typically family-owned, excluding very small companies, as they are not expected to have formal MAS (Alebaishi, 1998; Anderson & Lanen, 1999; Granlund & Lukka, 1998; Laitinen, 2001; Malmi, 1999; Marriott & Marriott, 2000; Pistoni & Zoni, 2000).

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 devise his own sampling frame (Saunders *et al.*, 2009). For this study, the researcher has visited each of the Office of Audit and Oversight, Commercial Register Office and National Oil Corporation, all based in the capital Tripoli, to obtain a list or an index of the names and addresses of Libyan companies. The researcher was able to get a

helpful list from the Office of Audit and Oversight that consists of 200 names of manufacturing and non-manufacturing companies, all of which state - owned. Although this list contained companies from across different industries and sub-sectors, it was incomplete, as some Libyan state-owned companies were not included and also it included liquidated companies and companies that were in administration as well. The list provided by the National Oil Corporation contained only 12 companies. A long and unclear list was provided by the Commercial Register Office; it included more than 10,000 private companies, comprising all kinds of private companies, large and small, even individual and small family projects. Unfortunately, this list was not useful as it did not contain contact details such as address, telephone number or email address. The initial sampling frame, which included 172 companies, was prepared based on these three lists. This frame was developed within the period of distribution of the questionnaire, by asking the companies whether there are other neighbouring companies and competitor companies to be added to the list of the sampling frame. The final sampling frame consists of a total 252 companies as shown in Table 4.3 The sample of the study included all these companies except 19 state-owned companies, three of which refused to participate in the study and, as the questionnaire survey had to administered by hand, it was not possible to reach the other 16 as they were mostly located in the far south or far west of the country.

Table 4.3 Population and Sampling Frame

Source	Total number	Companies suitable for the study	Final usable sample
Office of Audit and Oversight database of state-owned companies	200	155	136
National Oil Corporations database of state-owned companies	12	12	12
Commercial Register Office database of private businesses	More than 10,000	5	5
Other sources (these are leads and personal contacts explored by the researcher to identify suitable private companies)	82	80	80
Total	-	252	233

The financial directors were targeted as respondents for this research; however, they were asked whether anybody else was appropriate to fill in this questionnaire,

in which case it could be passed to them. The reason for choosing the directors is that they are in a good position to complete the questionnaire and should have the necessary knowledge to provide accurate and useful data regarding the contingent factors and MAPs in their companies. For the interviews, at the end of questionnaire the respondents were asked whether they were willing to participate in the interviews. Based on their answers, the number of interviewees was selected.

4.10 Questionnaire Design

A considerable amount of attention was paid to the questionnaire construction and many drafts and a thorough assessment and pre-testing were performed before getting the final version of the questionnaire. The questionnaire was designed to acquire information including organisational performance, contingent factors and MAPs of Libyan companies.

Therefore, several requirements were borne in mind within the stages of building up the questionnaire, as recommended to be considered by many writers such as Oppenheim (1992) and Collis and Hussey (2009). These requirements follow below:

- Use clear, simple and direct language, avoid words/wording that carry more than one meaning and use short questions as much as possible in a way that does not affect its content and meaning.
- Coordination of the questionnaire and questions: design a good layout and use consistency in style in each section to make the answering as clear and easy to follow. Guide the participant through the questionnaire by providing questions that are similar in content in the same sections. Start the questionnaire with general questions and move on to more specific questions to give respondents more confidence to answer the rest of the questionnaire, and move through questions in a logical sequence, without making major shifts or gaps for the respondents.

- Question types and format: Easterby-Smith et al. (2002) indicate that the important decisions to be considered in questionnaire design are related to the types of question to be used and the overall format of the questionnaire. They also suggest that the type of questions is associated with the aim and paradigm adopted in the research (Van der et al., 2004). Based on this, closed questions were used in this research questionnaire, most of them including the option “other (please specify)”. Moreover, several researchers recommended using closed questions in long and comprehensive questionnaires, as they are quicker and easier to answer and then be coded (Cooper & Schindler, 2006; De Vaus, 2001; Hair, Babin, Money, & Samuel, 2003; Mangione, 1995). In addition, a five-point scale was used in all questions except those regarding general information about the respondents and general information about the companies. In this regard, it was pointed out that a five-point scale is perfectly adequate, and that an increase to seven or nine points on a rating scale does not have an impact in improving the reliability of the ratings (Elmore & Beggs, 1975; Sekaran, 2003).
- Perfect appearance of the questionnaire, because this gives an initial impression about the seriousness and importance of the questionnaire.
- Finally, test the questionnaire in the pilot study.

4.10.1 Questionnaire Pre-testing and Translation

The questionnaire was structured in stages and underwent numerous revisions with the supervision team before a final draft was produced. The building of a questionnaire involves considering the research objectives, questions and framework (De Vaus, 2001; Malhotra & Birks, 2007; Oppenheim, 1992). However, using a pilot study enhances the response rates and validity and reliability of the questionnaire. It is very important to ensure that the questionnaire is carefully designed and further improvements are not needed before it is distributed for collecting the targeted data.

In addition, the questionnaire was formerly prepared in English, which is not an official language in Libya, and subsequently translated into the Arabic language to be suitable for the potential respondents. The process of pilot study and translation went through the following steps:

- The final English draft of the questionnaire was translated by the researcher into Arabic (the researcher is a native Arabic speaker). The translation was also applied to the cover letter, which was included in the survey package. The cover letter was developed by careful consideration, and was used to explain the purposes and detail of the survey. It is claimed that the response rate can be affected by the messages in the cover letter (Saunders et al., 2009).
- For the first pilot test, the Arabic version was sent to eight PhD Libyan students in different areas in accounting, four of whom have work experience relating to professional accounting in Libyan companies. They were asked to: identify ambiguous, poorly worded questions or unfamiliar terms, check the suitability of the questionnaire design, check the layout of the questions and the questionnaire, and provide any information about any potential difficulties that might face the researcher and respondents.
- The comments and feedback obtained from the pilot study were helpful regarding the wording of questions, clarity, presentation and formatting of the questionnaire. Therefore, most of them were taken into account and used to adjust the questionnaire in order to improve the clarity and a few modifications were made to produce a new draft of the questionnaire.
- Both English and Arabic versions were sent to a person who has a doctoral degree in accounting from a British university to check for translation accuracy and ease of understanding and that there were no noticeable problems to do with length, sequencing of questions and sensitive items. Valuable comments in terms of the design, wording and contents were received and accommodated in redrafting the questionnaire.

- After this the researcher went to Libya; the later Arabic version of the questionnaire and English version were handed to two academics who hold PhDs from UK universities and work as lecturers in the accounting department at Libyan universities. At the same time, the final Arabic version was sent to an Arabic language expert who checked out the Arabic language grammar and wording in order to make sure that the Arabic version was clear.
- A meeting was held between the researcher and academics for reviewing and discussion of their comments, taking into account the Arabic proofreading comments and adoption of the final version.
- It is always advisable to pilot the questionnaire on a small number of people before using it for real; once redrafted and finalised, ten questionnaires were distributed in Libyan companies. About a week later eight of the ten questionnaires were collected, and there followed a discussion with each respondent to obtain feedback about anything unclear or any problem in the questionnaire. All suggestions and comments received indicated there was no need to make any changes to the questionnaire. Finally, the research went ahead to distribute the questionnaire on the whole sample (see Appendix B).

4.10.2 Administration of the Questionnaires and the Interviews

Numerous methods can be used to administer questionnaires to maximise the response rate (Aaker, Kumar, & Day, 2001; De Vaus, 2001; Dillman, 1978; Malhotra & Birks, 2007; Oppenheim, 1992; Saunders et al., 2009). From personal experience, an administered questionnaire, which has been chosen in this research, is possibly the best data collection method when the survey is limited to: (a) a local area; or (b) the researcher wishes to target specific groups of people (Sekaran, 2000). Furthermore, the questionnaire was attached with a covering letter and supporting letters from the University of Huddersfield and the Libyan Cultural Affairs in London. The covering letter briefly explained the study objectives, the importance of the respondent's participation in the study and

assurance of confidentiality for the respondent, and included the researcher's contact details as well.

Once the final version of the questionnaire was ready, the process of delivering the package of questionnaires to Libyan companies began. The researcher, when distributing package of questionnaires, attempted to explain the respondents the outline of the research purpose and objectives and encouraged them to contact the researcher at any time if they had any queries, by using the researcher's contact information. In addition, the respondents were asked when the questionnaire would be ready for collection, and asked for their contact details in order to let them know before coming to collect it, and if it was not ready they were given another chance to fill the questionnaire.

A total of 233 questionnaires were distributed in Libyan companies during the period July– September 2009. A total of 132 questionnaires were received, providing a response rate of approximately 56.7% (see Table 4.3); 9 of these were unusable/partially completed questionnaires, representing a rate of 3.9%. Tables 4.3 summarises the composition of the final sample.

Table 4.4 Survey Response Rate

	No	%
Total distributed	233	100
No response	101	43.3
Total received	132	56.7
Unusable/partially completed	9	3.9
Usable	123	52.8

It is indicated in the literature, such as Saunders *et al.* (2009), that response rate of self-administered questionnaires is between 30 and 50%. Thus, it can be said that the response rate of this study was felt to be satisfactory.

In addition, semi-structured interviews were conducted with ten interviewees, using Arabic as the sole language. The choice of interviewees was based on two criteria; interviewee's approval through the answering the question in the questionnaire in this regard, which resulted in 19 respondents indicating that they would be willing to be interviewed; and judgement was used to choose a variety

of respondents in terms of size, age, sector and ownership, to guarantee that interviews cover all types of respondents. The process of conducting the interviews was as follows:

- They were launched in each company by introducing the researcher himself and who thanked the interviewee for providing the opportunity of this interview.
- Providing information about the nature of study, research topic, objectives, and the benefits. Before this, the researcher had asked the interviewees to complete the prepared questionnaire, which covers all issues related to interviews, so they were able to have full background about the subject of the interview, and thus were ready for the more specific questions.
- The interviewees were asked whether they believed that each of the contingent factors, namely: external environment, business strategy, organisational structure, product technology and characteristics of the organisation has any effect on the MAPs in terms of costing, budget and performance measurement practices in general, and on the MAPs of their own companies in particular; and if so, how and why it has these effects? When needed, the survey questionnaire was referred to, to enrich the discussion.
- Notes were taken during the interview, and they were rewritten again immediately after finishing the interview to make sure that the fresh information gathered in the notes and verbally was not lost, and to avoid the possibility of misinterpreting the information at a later date. This method was chosen, rather than tape recording, because the researcher was advised to use it, as it makes the interviewees feel uninhibited and comfortable about giving more information.
- At the end of the interview, they were asked whether they had any questions or wished to add any comments. The interviews were concluded by thanking the interviewee and appreciation was expressed for giving their time, effort and cooperation.

4.10.3 Response and Non-response Bias Analysis

Non-response bias is a potential problem in any survey; therefore it is crucial for any piece of research to consider the non-response bias effect due to the issue of generalising the study results. For dealing with this problem, there are several methods. Two investigations for non-response bias were undertaken in this research. Firstly, comparison of the data provided by early and late respondents is carried.* This method presumes that late respondents are more like refusals compared with those who return their questionnaire early (Kervin, 1992). Oppenheim (1966) reveals that "...it has been found that respondents who sent in their questionnaire survey late are roughly similar to non-respondents" (p. 34).

Table 4.5 Early and Late Response: t-test Results

<i>Variables</i>	<i>Early response</i>		<i>Late response</i>		<i>Sig</i>	<i>t</i>
	<i>Mean</i>	<i>S.D</i>	<i>Mean</i>	<i>S.D</i>		
Organisational performance	2.68	0.83	2.86	0.66	.332	-0.97
Cost Practices	6.00	3.89	6.38	3.43	.679	-0.41
Budget Practices	11.35	5.98	11.45	5.07	.941	-0.07
Performance measurement practices	4.05	3.26	4.02	2.43	.968	0.04
Dynamism	2.73	0.71	2.52	0.72	.199	1.29
Heterogeneity	2.72	0.83	2.50	0.68	.240	1.18
Hostility	2.76	0.98	2.61	1.21	.550	0.60
Strategy (1)	3.25	0.80	3.27	0.77	.921	-0.10
Strategy (2)	3.12	0.88	3.30	0.88	.374	-0.89
Strategy (3)	3.24	1.11	3.32	0.97	.768	-0.30
Centralisation	3.54	0.88	3.49	0.78	.811	0.24
Formalisation	4.06	0.72	4.10	0.66	.797	-0.26
Product complexity	2.83	0.69	2.90	0.80	.691	-0.40

df=12, Strategy (1) = mission strategy, Strategy (2) = competitive strategy, Strategy (3) = products & markets change strategy

This method is particularly useful when the researcher has used reminders or follow-up letters or phone calls. In addition, it is the most common methods, especially in MA research (Abdel-Kader & Luther, 2008; Abernethy & Brownell, 1999; Baines & Langfield-Smith, 2003; Buttermann, Germain, & Iyer, 2008; Firth, 1996; Guilding, 1999; Hyvönen, 2007). Therefore, the current research used this method; it was used in two ways. First way, an independent sample t-test was

* Late respondents are those that have missed at least two pre-agreed dates for the researcher to collect the completed questionnaire.

conducted to test the significant differences in the mean scores of key variables (see Table 4.4). Most of the key variables were chosen and tested, including MAPs, contingent factors and organisational performance. The results showed that there are no statistically significant differences in the mean scores between the former and latter responses ($P > 0.05$). Second way, known characteristics, such as age of company, size of company, industry sector and kind of ownership of the sample were compared to make sure that the companies that responded early had similar characteristics to those that ignored the questionnaire. The chi-square test (χ^2) was conducted owing to the categorical nature of these variables. The results showed that there were no statistically significant differences in the characteristics of companies between the earlier and latter responses ($P > 0.05$) (see Table 4.5).

Table 4.6 Early and Late Response: Chi-Square Test of Relatedness / Independent

<i>Variables</i>	<i>Pearson Chi-Square</i>	<i>df</i>	<i>Asymp Sig.(2-tailed)</i>	
Age of company	2.05	3	0.56	2 cells (25.0%) have expected count less than 5
Number of employees	2.33	3	0.51	3 cells (37.5%) have expected count less than 5
Main industry	0.67	1	0.42	0 cells (0%) have expected count less than 5
Type of ownership	0.87	1	0.35	0 cells (0%) have expected count less than 5

Secondly, the researcher called 10 non-respondent companies to enquire about the reasons for non-response; none of these gave rise to a non-response bias concern (Guilding, 1999). Three non-respondents stated that they have always filled in such questionnaires but received no benefit from doing so; four claimed that they were very busy and did not have enough time, two others promises they would fill it during the next few days but they never did so, while one other revealed that he would be away from the company for at least one month.

4.11 Content and Sources of the Questionnaire

The final draft of the questionnaire (see Appendix B) consisted of eight sections, presented in ten A4 pages, in addition to a cover page, and few extra blank pages

Table 4.7 Content and Sources of the Questionnaire

	<i>Q N</i>	<i>N</i>	<i>Scale and type</i>	<i>Anchors</i>	<i>Question objective and usage</i>	<i>Sources</i>	<i>Alpha</i>
A: General information about the responses	A1	1	Multiple-choice	Choose one appropriate answer	It is customary practice in most questionnaire surveys	Drury (1993); Longden, Luther, and Bowler (2001)	
	A2	1					
	A3	3					
	B1	1					
B: General information about your company	B2	1	1-5 likert	Poor to Outstanding	Measurement of company performance, used for hypotheses H15 - H22	Govindarajan (1984), Chong & Chong (1997), Hoque (Hoque, 2004), Hoque (2005), Govindarajan (1988), and Chenhall and Langfield-Smith (1998a).	.913
	B3	2					
	B4	1					
	B5	11					
C: Characteristics of contingent variables	C1	5	1-5 likert	Not changed to Significantly changed	Measurement of dynamic dimension of external environment, used for hypotheses H1 and H15	Sohn, You, Lee, & Lee (2003)	.676
	C2	4	1-5 likert	No diversity to Considerable diversity	Measurement of heterogeneous dimension of external environment, used for hypothesis H2	Sohn, You, Lee, & Lee (2003)	.775
	C3	4	1-5 likert	Strongly disagree to Strongly agree	Measurement of hostility dimension of external environment, used for hypothesis H3	Sohn, You, Lee, & Lee (2003)	.681
	C4*	1	Multiple-choice	Choose one appropriate answer	Measurement of customisation level, used for hypothesis H10	Cooper and Zmud (1990) and Krumwiede (1998)	
	C5*	5	1-5 likert	Totally disagree to Totally agree	Measurement of product diversity, used for hypothesis H9	Krumwiede (1998), Al-Omiri (2003), Zuriekat(2005) and Al-Hussari (2006)	.724
	C6	8	1-5 likert	Totally disagree to Totally agree	First 3 items measure Build & Harvest (H4), following 3 items measure Differentiation & Cost leader (H5)and last 2 items measure Prospector & Defender (H6)	Banker, Potter, & Schroeder (1993), Al-Hussari (2006), Snow & Hrebiniak (1980), Gosselin (1997), Chenhall & Langfield-Smith (1998b), Halim (2004), Chenhall (2005), Auzair & Langfield-Smith, (2005) and Guilding (1999)	.652 .757 and .862
	C7	6	1-5 likert	Never to Always	Measurement of centralisation, used for hypothesis H7	Hage & Dewar (1973), Gordon & Narayanan (1984) and Chenhall and Morris (1986)	.868
	C8	4	1-5 likert	Never to Always	Measurement of formalisation, used for hypothesis H8	Nicolaou (2000)	.795
D: MAPs (costing practice)	D1	7 × 2	(2) 1-5 likert	Not used to highly used and Does not meet the need to Highly meet the need	Measurement of use of costing practices and Costing practices usefulness**, used for hypotheses H1-H15, H19 and H22	Ackoff (1981), Lyne (1988), Anthony, Dearden , & Govindarjan (1992), Drury et al. (1993), Drury & Tayles (1994), Alnamri (1993), Innes & Mitchel(1995), Firth (1996),	.886

	D2	9 × 2	(2) 1-5 likert	Not used to Highly used and Very dissatisfied to Very satisfied	Measurement of purposes of product cost and how they are satisfied	Kaplan & Norton (1996), Atkinson, Waterhouse, and Wells (1997), Chenhall & Langfield- Smith (1998a), Chenhall & Langfield-Smith (1998b),	.965
E: MAPs (budget practice)	E1	10 × 2	(2) 1-5 likert	Not used to Highly used and Does not meet the need to Highly meet the need	Measurement of use of budget practices and Budget practices usefulness**, used for hypotheses H1-H14 and H16 - H22	Wallander (1999), Garrison & Noreen (2000), Norreklit (2000), Zimmerman (2000), Atkinson, Banker, Kaplan, & Young (2001), Ittner & Larcker (2001), Joshi (2001), Luther & Longden (2001), Malmi (2001), Haldma & Laats(2002), Horngren, Sundem, Stratton, Burgstahler, & Schatzberg (2002), Tsamenyi, Bennett, and Black (2004), Hutaibat (2005), Abdel-Kader & Luther (2008), Bhimani et al. (2008), Drury (2008) and Schoute (2009).	.932
	E2	3	1-5 likert	Not used to Always used	Preparing budget methods		
	E3	9 × 2	(2) 1-5 likert	Not used to Highly used and Very dissatisfied to Very satisfied	Measurement of purposes of budgets and how they are satisfied		.957
F : MAPs (performance measurement)	F1	10 × 2	(2) 1-5 likert	Not used to Highly used and Does not meet the need to Highly meet the need	Measurement of use Performance Measurement practices and Performance Measurement practices usefulness**, used for hypotheses H1-H14, H16- H18, H20 and H21		.921
	F2	10 × 2	(2) 1-5 5likert	Not used to Highly used and Very dissatisfied to Very satisfied	Measurement of Performance Measurement practices and how they are satisfied		.967
G: Management accounting change	G1	15 × 2	(2) 1-5 likert	No change to >5 changes and Not successful to Very successful	To categorise and provide some analytical insights into novel typology and patterns of MA change within Libyan companies in the last 5 years, and degree of success as well. Used for descriptive purpose in Chapter 5	Such as Simmonds (1981), Clark (1985), Innes & Mitchell (1990), Shields & Young (1991), Bright, Davies, Downes, & Sweeting (1992), Kaplan & Norton (1992) Drury <i>et al.</i> (1993), Friedman & Lyne (1995), Yoshikawa, Dutton & Ferguson (1996), McLaren (1999), Darlington, Innes, Mitchell, & Woodward (1992), Shank (1996), Gosselin (1997), Jones & Dugdale (1998), Burns, Ezzamel, & Scapens (1999), Kaplan (1985), Granlund (2001) and Vaivio (1999)	.965
H: factors influencing MAPs	H1	20 × 3	5 likert	No influence to Considerable influence	To highlight the participants' perceptions of the relationship between contingent factors and the MAPs in terms of cost, budget and performance measurement system.	These items were developed by the researcher	.954

Q N: Question number; N: Number of items; H: hypothesis; *this question for manufacturing companies only; **usefulness = scale of use × scale of meeting the need for each item and company.

at the back for any additional comments by the respondents. The content of the questionnaire, variables measured and source of construct are summarised in Table 4.6.

4.12 The Validity and Reliability of the Questionnaire

It is very important for any research to assess to what extent it is likely to be valid and reliable. In other words, it has to ensure that the measurements used in the research are reasonably suitable. In this context, there are two major issues arising: measurement validity and measurement reliability. Measurement validity is concerned with whether the “thing” that is aimed to be tested really is being tested, whereas measurement reliability refers to how well the construct of interest is measured (Bryman & Bell, 2007)

4.12.1 Validity

Validity is considered as one of the most crucial criteria of research (Bryman & Bell, 2007). It refers to the degree to which a measure really measures the concept that it purports to measure (Bryman & Cramer, 2005). It implies that the question of validity draws attention to whether the researchers are measuring the right concept or not (Cooper & Emory, 1995). Therefore, the concept of validity is concerned with the accurateness of the research findings, and their representativeness of the real situation (Collis & Hussey, 2009).

Several types of validity tests are identified and discussed in research literature. Firstly, criterion validity which is used to ensure measurement validity (Hair et al., 2003; Sekaran, 2003). It evaluates the extent to which a construct behaves as expected relative to other variables identified as meaningful criteria (Hair et al., 2003). Oppenheim (1992) referred to two types of criterion validity – concurrent validity and predictive validity. The former refers to whether the measurement scale relates to other well-validated measures of the same subject. While the latter implies the ability of an instrument scale to predict future performance, events, behaviour and attitude (Litwin, 1995).

Secondly, content validity, which is seen as the most important type of validity, since it is concerned with the extent to which measurement scale reflects what is supposed to be measured (Sekaran, 2003; Shannon & Davenport, 2001). According to Emory and Cooper (Emory & Cooper, 1991), content validity can be achieved by a careful definition of the research topic and the items included in the measurement scale. They further suggest that using a group of individuals or experts can help in judging how well the instrument meets the standard. Litwin (1995) recommends that assessing the content validity involves a review of the questionnaire content so as to ensure it includes everything it should, and does not include anything it should not. It has been argued that there is a disagreement among social science researchers regarding the content of many concepts, and it is apparently difficult to develop measures that have agreed validity (De Vaus, 2001).

Thirdly, construct validity, which shows how well the findings derive from employing the measure that fits the theories and theoretical assumptions around which the test is designed (Sekaran, 2003). It is usually evaluated by tracking the performance of the instrument scale over years in different settings and populations (Litwin, 1995). It has been recommended to use established constructs or measurement scales and take into account the opinion of experts (De Vaus, 2001).

Regarding this study, many procedures have been followed to achieve questionnaire validity:

- An extensive literature was carried out and understood to define the topic and purpose of the study and research methodology (chapter 2 and 3).
- The study questionnaire was assessed and refereed by a number of people who have adequate knowledgeable experience in the study area and a pilot study was conducted (see Subsection 4.10.1).
- Ten face-to-face interviews were held with direct financial managers during the data collection (see Chapter Seven).

- By using a self-administered questionnaire the respondents were provided the outline of the research purpose and objectives and encouraged to contact the researcher at any time with any questions using the researcher's provided contact (see Subsection 4.10.2).
- Most questions were driven by previous studies that used different populations and different times, thus contributing to construct validity (see Table 4.4).

4.12.2 Reliability

Reliability is concerned with the extent to which the instrument is without bias and consistent over time (Bryman & Bell, 2007; Collis & Hussey, 2009; Sekaran, 2003). In other words, reliability is primarily concerned with stability of the measures and the research results (Easterby-Smith *et al.*, 2002; Ghauri & Grønhaug, 2005). Reliability is regarded as an important aspect for positivistic studies, and normally survey research maintains high reliability (Collis & Hussey, 2009). The most widely used form of internal consistency of a study instrument is Cronbach's Alpha test (Easterby-Smith *et al.*, 2002). Therefore, it was used to calculate to the overall reliability of the multiple items used in this study. Table 4.6 shows the test result for each contingent variable, organisational performance and each classification of MAPs and purposes. The results confirm the relatively high internal consistency of each classification item, which ranged from 0.656 to 0.967. According Hair, Anderson, Tatham and Black's (1998) recommendation, the acceptable level of reliability for Cronbach's alpha is 0.60 or more. Regarding this study, therefore, the results indicate rather high reliability, which indicates the internal integrity of the questionnaire.

4.13 Data Analysis

Because of the focus of this study and based on previous research conducted in the same area, the hypotheses suggested in section 4.4 are tested using simple and multivariate data analysis. The software used for conducting the quantitative analyses was SPSS version 17. Before the regression analyses were performed the data extracted from the survey were tested to investigate several issues including

differences between non-respondents and respondents (Independent Samples t-test and Chi-square, see subsection 4.10.3), and the reliability of some of the study variables such as personal moral philosophy dimensions and ethical climate types (Cronbach's alpha test see, Table 4.6). In addition, the assumptions required for parametric tests were examined and met (see Chapter Six sections 6.2). Once these tests were achieved, the regression tests were conducted. The following subsections explain the statistical tests that were used in this study.

4.13.1 Descriptive Statistics

The main purpose of using descriptive statistics such as frequency and means is to achieve descriptive objectives, to describe the status and purposes of MAPs within Libyan companies, and to investigate management accountants' perceptions of the relationship between contingent factors and MAS as well. In addition it is used to describe the characteristics of the study's respondents and responding companies.

4.13.2 Direct Effect of Contingent Factors on MAPs

Hypotheses 1-14 shown in subsection 4.4.1, describe the expected direct effect between a predictor variable (contingent variables) and a dependent variable (MAPs usefulness). These hypotheses are tested using simple regression. Furthermore, further analysis was undertaken by using multivariate statistical analysis, namely Multiple Linear Regression, to examine the association between each set of independent variables that fall under one contingent factor and a dependent variable simultaneously. It also attempts to explain or predict the dependent variable on the basis of these independent variables.

4.13.3 Indirect Effect of Contingent Factors on Organisational Performance via MAPs

According to Schoonhoven (1981, p. 351), "*when contingency theorists assert that there is a relationship between two variables [...] which predicts a third variable [...] they are stating that an interaction exists between the first two variables*". Based on this definition and results of earlier direct hypotheses (Hypotheses 1-14), Hypotheses 15-22 (see Chapter Six section 6.4) were

formulated where only the direct relationship between contingent factors and MAPs was found. These hypotheses focus on the impact of interaction effects between contingent variables and MAPs' usefulness on organisational performance. This interaction effect involves a mediation effect. According to Venkatraman (1989), a mediation effect is said to exist when there is "a significant intervening mechanism (MAPs) [...] between an antecedent variable (contingent variables) [...] and the consequent variable (organisational performance) (Venkatraman, 1989, p. 428). It implies that MAPs play an important role in enhancing organisational performance through intervening in the relationship between contingent variables as antecedent variable and organisational performance as consequent variable. The Mediation Regression was applied to test these hypotheses.

4.14 Summary and Conclusion

Explaining and discussing the research framework and methodology of this study have been the main purposes of this chapter. The literature review carried out in Chapters two and three identified several important gaps and justifications for building the research theoretical models. The illustration forwarded in respect of the study theoretical models highlighted that the current study extends earlier studies to achieve the study objectives. This chapter has attempted to provide a study framework to shed light on justifications for the use of MAPs in this study; the extent of MAPs usefulness in Libyan companies, and justifications for contingency theory approaches are applied to address the relationship among the extent of MAPs usefulness, contingent factors and organisational performance as well. The conceptual definitions of contingent factors used were discussed briefly. Then, the hypotheses relating to the direct relationships between these contingent factors, MAPs and organisation were formulated. The next chapter presents the research methodology.

In addition, to achieve the research objectives a mixture of paradigms (and a mixed-methods approach (triangulation of methods) were adopted. The data were collected for this purpose using a questionnaire survey and analysed by different statistical methods, namely: descriptive statistics, simple regression, multiple

regression and mediation regression to provide reasonable and acceptable results. To supplement the quantitative data, a number of interviews were undertaken. Relevant tests were conducted to establish validity and reliability, including checking for non-response bias.

The following Chapter will present the first part of the analysis, namely, a descriptive statistical analysis. The results provided in Chapter Six mainly fulfil the first two study objectives mentioned in Chapter One, i. e. to assess the extent of usage of MAPs in Libyan companies, and what are the purpose of them and the level of satisfaction with them.

Chapter Five

Descriptive Analysis of Current MAPs and their Purposes in Libyan Companies

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5.1 Introduction

This chapter aims to present and discuss the MAPs reported by the Libyan companies that have participated in the questionnaire survey. This serves the first two research objectives as outlined in Chapter 1, namely:

- To determine what MAPs currently exist in Libyan companies.
- To determine the purposes of using MAPs in Libyan companies, and how far these purposes of MAPs are satisfactory.

This chapter presents general information regarding the respondents and their companies, and equally reveals the extent of usage of the MAPs covered by this study (i.e. costing, budgeting and performance measurement practices) by the responding companies. In addition, this chapter describes the importance of these practices for meeting the companies' information needs; in particular, it includes answers to specific questions which include:

- To what extent do Libyan companies employ MAPs?
- How important are these practices for companies to meet their information needs?
- What are purposes of using MAPs in Libyan companies, and
- How satisfactory are they for the participants?

The remainder of this chapter is divided into seven sections: Sections 5.2 and 5.3 present general information about the respondents and their companies. Section 5.4 indicates the organisational performance of Libyan companies. Section 5.5 gives highlights on the present status of MAPs currently applied in Libyan companies. Section 5.6 discusses the purposes of MAPs use in Libyan companies. Section 5.7 describes management accounting change. The conclusions are presented in Section 5.8.

5.2 General Profile of the Respondents

It is known that work location, qualifications, subject specialism, and the experience of the respondents could influence their perceptions and the quality of their responses to the questionnaire. It was important to make sure that the respondents held senior positions and could be considered sufficiently knowledgeable and experienced about business environments, organization performance and MAPs, particularly in their own companies and in general. Therefore, the respondents were requested to indicate what jobs they do in their companies, their qualifications, and their specialisations. The responses are summarised in Table 5.1.

Based on this Table, it can be concluded that the majority of participants (i.e. 91.1%) occupied senior accounting and financial management positions in their companies (financial manager or head of costing department). Moreover, they had high qualifications of at least bachelor degrees, and most of their specialisations were in accounting. However, it is noteworthy that no single participant had professional accounting qualifications; this may be because such qualifications are not popular in the Libyan environment. In addition, the respondents are highly experienced in terms of how long they have been in their current position and company (10 years or more), as well as in accounting and finance in general.

Thus, this survey has not only benefited from a high response rate (which is usually a data deficient research area), it also has the added advantage of the longevity of the respondents that have senior positions in their companies, at least a first university degree in accountancy and are highly experienced. This supports the reliability of the data collected and helps in enhancing the analysis of the data and dissemination of the results which will be shown in subsequent chapters.

Table 5.1 General Profile of the Respondents

<i>Job Title</i>	<i>Frequency</i>	<i>Percentage</i>				
Financial Manager	97	78.9				
Head of cost department	15	12.2				
Financial Accounting	3	2.4				
Management accounting	2	1.6				
Auditor	2	1.6				
Other	4	3.3				
Total	123	100.0				
<i>The Highest Qualification</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative Percentage</i>			
PhD	0	0	0			
MA/MSc	11	8.9	0			
BA/BSc	83	67.5	8.9			
High school	23	18.7	76.4			
Other	6	4.9	95.1			
Total	123	100	100			
<i>Subject</i>	<i>Frequency</i>	<i>Percentage</i>				
Accountancy	99	80.5				
Business management	17	13.8				
Economy	4	3.3				
Other	3	2.4				
Total	123	100				
<i>Experience</i>	<i>Post-qualification</i>		<i>Current job</i>		<i>Current company</i>	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
Less than 5 years	5	4.1	18	14.6	15	12.2
5 – 10 years	18	14.6	38	30.9	33	26.8
11 – 15 years	28	22.8	27	22	24	19.5
More than 15 years	72	58.5	40	32.5	51	41.1
Total	123	100	123	100	123	100

5.3 Information about the Participating Companies

The information presented in this section is related to the companies participating in this study. This information is about the age of the company, the main type of industry, company size and ownership type.

Table 5.2 shows that 67.5% of respondent companies their age is than 20 years, which means that the majority of respondent companies are relatively old with highly experience. Annual sales and number of employees have been used as proxy of the company size, it can be seen form Table 5.2 that most of the sample

companies their of annual sales do not exceed 10 millions, and 54.5% of them employ 500 employees or less. This indicates that company size of the sample of the current study is relatively smaller than other relevant studies, such as in the US and the UK (e.g. Coad, 1999; Shim and Larkin, 1994).

Table 5.2 Characteristics of Companies

<i>Characteristic</i>	<i>Categories</i>				
	<i>< 5 years</i>		<i>5 – 10 years</i>	<i>>10 – 20 years</i>	<i>> 20 years</i>
Age	<i>< 5 years</i>		<i>5 – 10 years</i>	<i>>10 – 20 years</i>	<i>> 20 years</i>
Frequency	10		13	17	83
Percentage	8.1		10.6	13.8	67.5
Sales Turnover (LD)*	<i>< 1 million</i>		<i>1- < 5 millions</i>	<i>5 - 10 millions</i>	<i>> 10 millions</i>
Frequency	12		24	27	60
Percentage	9.8		19.5	22	48.8
Number of Employees	<i>< 100</i>		<i>100 - 500</i>	<i>501 -1500</i>	<i>>1500</i>
Frequency	17		50	36	20
Percentage	13.8		40.7	29.3	16.3
Type of ownership	<i>State-owned</i>	<i>Private</i>	<i>Joint venture state & private</i>	<i>Joint venture state & foreign</i>	<i>Joint venture private & foreign</i>
Frequency	66	37	3	13	4
Percentage	53.7	30.1	2.4	10.6	3.3

* LD: Libyan Dinar. 2 LD equals 1 UK pound (as Central Bank of Libyan reported on 19/06/2009)

The type of ownership is also specified in this table. Although the state-owned companies have largest percentage of respondent companies, the private and shared companies whether local investors and foreign investors have significant share. This may be in response to the privatization policy that have adopted by Libyan government towards transformation to private sector (see Chapter One).

According to the type of industry, the Table 5.3 illustrates that majority of the respondent companies (i.e 57.7%) were categorised as manufacturing companies, while the remainder are non- manufacturing companies, which most of them are financial service and oil and gas companies. Therefore, these responding companies are suitable and represent a good sample to achieve the objectives of this study in terms of their age and size as well as types of ownership and presenting a variety of industrial sectors.

Table 5.3 Main Industrial Sector of the Responding Companies

<i>Company</i>	<i>Frequency</i>	<i>Percentage</i>
Manufacturing	71	57.7
Retail trade	3	2.4
Financial Services	15	12.2
Oil and Gas	13	10.6
Agricultural	2	1.6
Transportation	1	.8
Construction	4	3.3
Tourism	9	7.3
Other	5	4.1
Total	123	100

5.4 Organisational Performance

The organisational performance instrument that is used in this study was developed by Govindarajan (1984). It has been used in several management control contingency studies (e.g. Abernethy & Guthrie, 1994; Chong & Chong, 1997; Govindarajan, 1988; Govindarajan & Fisher, 1990; Govindarajan & Gupta, 1985). Respondents were requested to rate how they assess their organisations actually performed along. Each of the eleven performance measures (items B5 1 - B5 11) in the questionnaire related to competitors over the last 5 years to evaluate the overall of organisational performance.

Table 5.4 Company Performance

<i>Performance indicator</i>	<i>Rank</i>	<i>Mean</i>
Sales revenue	1	3.24
Customer satisfaction	2	2.99
Net income (i.e. profit)	3	2.95
Net cash flow	4	2.89
Market share	5	2.85
Return on investment	6	2.70
Cost reduction	7	2.65
Personnel development	8	2.50
Overall research and development	9	2.50
New market development	10	2.34
New product development	11	2.23

It can be seen from Table 5.4 that all performance indicator items, except sales revenue are less than average; which means the most of these indicators in

surveyed companies are relatively low. Equally, this indicates that the indicators that relate to financial performance are higher than those assess the non-financial performance, as it was found that 4 indicators out of last 5 items relate to non-financial performance.

5.5 Management Accounting Practices Usefulness

This section seeks to explore the status of MAPs in Libyan companies, through an investigation of the frequency of use of MAPs on the one hand, and how they respond to the requirements of the company on the other, because a high rate of frequency of use may not necessarily reflect the satisfaction level of the responsiveness of the company's requirements. In other words, the ranking of practices does not necessarily correlate with the ranking of benefits received or meet the needs. Therefore, in Sections D, E and F of the questionnaire, the respondents were asked to specify two dimensions for each MAPs listed:

- Firstly, to what extent were individual practices used during the last five years (in the left hand) and
- Secondly, to what extent did the practices used meet company expectations (in the right hand).

5.5.1 Costing Practices

Based on the above argument, Table 5.5 presents both the extent of use of cost practice (in the second and third column) and the level of the extent to which these practices met companies' expectations (in fourth and fifth column) during the last 5 years in Libyan companies. It can be seen from this table that the most popular costing practices are full (absorption) costing and variable costing for which the mean scores were above the average (3) (i.e. 3.65 for full costing and 3.01 for variable costing). These two practices are respectively adopted by 79% and 61.7% of Libyan companies, which at least shows a moderate to high usage of these

practices*. The results also reveal that the traditional costing practices have been used more than that for the advanced practices. However, there is only one traditional cost practice (i.e. standard costing), whose mean of usage was less than the average (i.e. 2.51), and was used by 44.6% of the respondent companies (i.e. within moderately to highly usage). Whilst the contemporary cost practices are showed very low adoption rates, since the mean usage of these practices were ranging between 1.52 to 1.08.

Table 5.5 Costing Practice

<i>Costing practice</i>	<i>Used level percentage (N=123)*</i>					<i>M (S.D)</i>	<i>Meet the needs rate*</i>					<i>M (S.D)</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	
Full costing	13.8	6.5	14.6	30.9	34.1	3.65 (1.37)	13.0	8.1	25.2	30.1	23.6	3.43 (1.29)
Variable costing	27.6	10.6	17.9	21.1	22.8	3.01 (1.53)	27.6	10.6	27.6	20.3	13.8	2.82 (1.40)
Standard costing	37.4	17.9	15.4	14.6	14.6	2.51 (1.48)	36.6	13.0	20.3	15.4	14.6	2.59 (1.48)
Target costing	77.2	4.1	10.6	5.7	2.4	1.52 (1.05)	77.2	1.6	8.1	8.1	4.9	1.61 (1.22)
Quality cost reporting	86.2	2.4	2.4	5.7	3.3	1.37 (1.59)	86.2	.8	3.3	5.7	4.1	1.4 (1.07)
Life-cycle costing	91.9	1.6	3.3	1.6	1.6	1.20 (.72)	91.9	.8	.8	5.7	.8	1.23 (.80)
ABC	96.7	.8	.8	.8	.8	1.08 (.489)	97.6	.8	0	0	1.6	1.07 (.51)

*1 = Not at all, 2 = Slightly, 3 = Moderately, 4= Often, 5 = Highly; M= Mean

Similarly, the fifth column of Table 5.5 indicates that full costing and variable costing are the highest two costing practices which met companies' expectations during the last 5 years to reflect the degree of benefit obtained from these practices. However, only, full costing practice has got a mean score exceeded the average (i.e. 3.43), compared to other traditional practices which their mean values have been in the range of 2.5 to 3.0; whereas the mean score of the contemporary costing practices were below 1.7.

* The purpose of this classification is to provide a basis for comparison and discussion of the use practices.

In comparing the level of usage with the level of meeting needs two things can be seen: firstly, the mean score of these two dimensions of costing practices are very close, so the order of these costing practices in both dimensions are the same; for example, full costing practice acquired the first rank in both dimensions, variable costing attained the second rank in both dimensions and so on. Hence, the results indicate that the highly used practices are the same as the highly met needs, and vice versa. This implies that the level of usage may reflect the level of needs met. In other words, the greater the level of employment of the practice, the greater the level of responsiveness to the needs of the company. Secondly, although as stated earlier the mean score of level of usage and level of meeting the needs of each costing practices are very close, it can be noted that the mean score of full costing and variable practices usage are a little bit lower than the mean score of meeting the needs, which may imply that the level of use of these practices does not meet the required level. While the mean score of the use of other costing practices, except ABC, are a little higher than the mean score of meeting the needs. This could be interpreted as the importance of these practices, because the level of responsiveness to the needs of the company was higher than the level of use, in addition to the level of use of these practices being below the required level.

However, previous studies reported varied adoption rates for costing practices. Use of full costing is more common than use of variable costing in Australian and Japanese companies (Wijewardena & De Zoysa, 1999). Szychta (2002) also reported that full costing was the most adopted practice used in Polish companies, as 90% of these companies use this practice compared to about one half of this percentage use variable costs (e.g. 53.6%). These findings were also supported by Chenhall and Langfield-Smith (1998b) who reported that 80% of the surveyed companies apply full costing in corresponding to 76% apply variable costs.

In the Libyan context, in their studies, Alkizza (2006) and Leftesi (2008) concluded that full costing has wider usage than that for variable costing. Alkizza (2006) also indicated that the usage rates of costing were 65.5% and 34.5%, for full costing and variable costing, respectively; whereas Leftesi (2008) reported higher rates of usage of costing which were 96.3% and 71.6% for full costing and

variable costing, respectively. In a different study, Abulghasim (2006) reported that all Libyan state-owned manufacturing companies apply full costing practice and not variable costing, referring the reason for those companies were obliged to apply full costing by the Libyan tax law for preparing financial statements. In this context, Ahmed and Scapens (1991) argued that the wide use of full costing is due to the demand for companies by law to allocate their costs based on their products for determining their products prices.

On the other hand, numerous former studies, carried out in different countries, indicated that relatively lower usage rate of traditional cost practices (e.g. full costing and variable costing) was demonstrated compared to current studies. In a different study in Estonian, Haldma and Laats (2002) reported that 54.8% of Estonian companies surveyed apply full costing compared to 38.7% of them apply variable costing. Moreover, Joshi (2001) conducted a study on Indian context, he found that full costing practice has been used by one half (i.e. 50%) of Indian companies and variable costing were used by 52% of them.

According to Wijewardena and De Zoysa (1999) the standard cost has been perceived as a useful practice for provision information that used for controlling and performance evolution in companies in the developed countries. Similarly in the UK, numerous research has been conducted on this context (Drury *et al.*, 1993; Puxty & Lyall, 1989). The researchers found that more than 75% of the surveyed manufacturing companies in the UK apply this practice. In their comparative study on MAPs in Japanese and US manufacturing companies, Shields *et al.* (1991) reported that from 70-73% of the US companies use standard cost practice, corresponding to 40- 60 % of Japanese companies using similar practice. Whilst according to Guilding, Lamminmaki, and Drury's (1998) comparative study which was conducted on the UK and NZ manufacturing companies, the researchers found that there was insignificant differences in using this practice in both countries, and it has been used by 76% and 73% in the UK and NZ respondents companies, respectively.

Additionally, many researchers (Al-Khater, 1999; Alebaishi, 1998; Blayney & Yokoyama, 1991; Joshi, 2001) equally reported that the standard cost is used by

57% of Saudi manufacturing companies, 69% of Australian companies, 52% of Japanese companies, 64% of the UK companies, 80% of petrochemical respondent companies in Gulf Cooperation Council Countries, and 68% of sampled Indian manufacturing companies.

Hence, it is apparent that use of the standard cost by the responded companies exceeds the half in all reported studies mentioned earlier. Whereas, according to the findings of the current study, the use of standard cost by Libyan companies do not exceed 45%. Which is possibly referred to the low application of standard cost by Libyan companies compared to similar companies in other countries. Also, possibly because the Libyan companies mostly depend on budgeting, as practice for controlling and performance evaluation, rather than standard cost.

In addition, Table 5.5 shows that the usage rates of advanced costing practice is very low, none of them exceeded 20% of the usage rate. This finding, to a certain extent, is similar with those reported in previous studies conducted on Libyan context. For instance Leftesi (2008) reported that the highest adoption rate of advanced management accounting by Libyan manufacturing companies was targete costing with a value of 13.6%, followed by quality cost reporting with a value of 12.3%, and finally life-cycle costing with a value of only 3.7%. Moreover, the first and the second have been the most familiar practices by the respondent companies. In the contrary, other researchers Abulghasim (2006), Alkizza (2006) and Leftesi (2008) stated that none of the Libyan companies surveyed apply ABC practice or even considered adopting them in near future. Furthermore, Leftesi (2008) pointed out that quality cost reporting is perceived for being the highest adoption rate amongst advanced management accounting. Even though Although Abulghasim (2006) reported that Libyan manufacturing companies surveyed are unfamiliar with the advanced MAPs, Alkizza (2006) stated that some of Libyan companies, especially manufacturing companies, are concerning to adopt advanced MAPs. For instance, he found that more than 30% of the manufacturing companies plan to use the target costing and life-cycle costing.

In addition, many studies conducted in different developed and developing countries Barbato *et al.* (1996) in Italy, Saez-Torrecilla, Fernandez-Fernandez, Texeira-Quiros, and VaqueraMosquero (1996) in Spain and Szychta (2002) in Poland, as well as other studies, such as Dugdale and Jones (1997), were more meticulous and even proclaimed that there is misunderstanding, ambiguous, exaggerated or mistaken conceptions in many firms which claim applying ABC practice.

On the other hand, other studies reported a relatively high usage rate of advanced costing practice. For example, Joshi (2001) reported that 20% of Indian companies surveyed adoption ABC, Drury and Tayles (1994) reported that 13% of UK manufacturing companies adopted or about to adopt ABC practice, whereas Coad (1999) pointed out that 34.7% of surveyed companies used ABC. However, Innes, Mitchell and Sinclair (2000) argued that the rate using of ABC practice had not grown since 1994 when last survey was done, as the rate adoption of ABC was 17.5% in 1999 in the UK and it had been used by 21% in 1994. In Australian ABC practice was classified by Chenhall and Langfield-Smith (1998b) as low adoption, despite it was used by 56% of respondent companies.

According to Drury *et al.* (1993) 26% of the UK surveyed companies use target cost practice. In a similar study, Coad (1999) found that 26.4% of the UK companies have been applying target cost practice. While Joshi (2001) has considered the usage of modern management accounting within Indian companies, and reported that more than two thirds of these companies adopted target cost practice.

Life cycle practice has also been investigated in several countries. This technique was found to be the most popular among modern management accounting techniques. For instance, Chenhall and Langfield-Smith (1998b) reported that 70% of Australian respondent companies have been using life cycle practice; and equally, within Indian companies, Joshi (2001) found that 45% of these companies use this practice. Unlike, Coad (1999), Wijewardena and De Zoysa (1999) and Adler, Everett and Waldron (2000) found that the overall use of life cycle practice was fairly low compared with other modern management

accounting practices (e.g. 17.9% by the UK companies, 13% by Japanese companies, and only 3% by NZ companies).

Little research has been reported surveying the adoption of quality cost reporting practice. In their study, Abdel-kader and Luther (2008) reported that 45% of the UK food companies use quality cost reporting practice, corresponding to only 19.4% of NZ companies reported by Adle *et al.* (2000).

To sum up, there is ample evidence from this study and surveys conducted in many countries that traditional costing practices, especially full costing and variable costing, are of primary importance and still widely used. A possible explanation for this result is, as Ahmed and Scapens (1991) stated, that the extensive application of full costing is due to the demand for companies by law to allocate their costs based on their products for determining their product prices. In comparison with the results of previous studies in the Libyan context (i.e Alkizza, 2006; Leftesi, 2008), it is noted that there has not been a growing awareness of most costing practices, especially advanced practices, because no improvement in the implementation rate of these practices has been observed. This may be due to the lack of expertise in implementing the concept of these practices, its difficulty in practical use, as well as the time and money involved in developing it, which were revealed in Adler *et al.* (2000) and Waldron's (2005) studies. Moreover, the above results showed that the use of all costing practices was much less popular in Libya than in other countries. There are several possible reasons for such a lack of using cost practices, as follows:

- The Libyan external environment, as argued in Chapter One, is undergoing a phase of transition from a centrally planned economy to a market economy. As is well known, a centrally planned economy rarely faces commercial problems such as what products should be produced or on which markets should they be sold to bring them into profit (Haldma and Laats (2002). In addition, Haldma and Laats (2002) also argue that decision-making is usually highly centralised and accounting information is not considered significant in the decision-making process. In this study, most of the respondent companies have been operating for a long time

under the philosophy of this economy which is less concerned with MAPs information. Therefore, this significant shift in the business environment may need some time to be fully recognised by Libyan companies which will, in turn, have to improve their accounting information and management for better decision-making.

- It is well revealed that management accounting and control systems are generally resistant to change. Therefore, one possible reason for Libyan companies not using recently developed costing practices such as ABC, target costing and quality costing, may be the time lag between the introduction of new ideas, techniques and practices, and their actual implementation. It takes time for new ideas and techniques to be accepted and implemented by companies, particularly in developing countries where there is not a developed financial press (see Bjornenak, 1997; Scapens, 1983).
- The characteristics of Libyan companies could also be a reason for lack of using costing practices, especially these advanced practices. For example, as indicated earlier (Table 5.2), Libyan companies in general are much smaller than their counterparts in developed countries such as the UK and USA. It is argued that increased company size leads to an increased complexity of tasks, which requires more MA information. In addition, as seen earlier (Table 5.2), most of the sampled companies of this study are state-owned, which may influence the level of adoption of costing practices.
- Lack of active professional accounting institutions such as the CIMA in the UK and lack of active accounting researchers in Libyan educational institutions such as universities and research institutions. It is believed that such active institutions will help in diffusion of management accounting innovations and improve MAPs' implementation.

5.5.2 Budgeting Process

This Section attempts to argue the budgeting process within Libyan companies. Preston (1991) pointed out that the kind of budgeting system is mainly contingent on the organisation's surrounding environmental conditions. This section aims to determine what of budgeting practices are used and the extent of meet expectations.

5.5.2.1 Budgeting Practices

As described earlier (section 5.5), the respondent companies were requested to indicate, on a five-point Likert scale, two things: **(a)** the extent of the budgeting practices applied in their companies, **(b)** the extent to which these budgeting practices met their companies' needs. These practices were classified as: sales budget, production budget, direct materials budget, directs labour budget, overheads budget, master budget, flexible budgeting, capital budget, cash budget, and administrative expenses budget.

Table 5.6 Budgeting Practices

<i>Budgeting practice</i>	<i>Used level percentage (N=123)*</i>					<i>M (S.D)</i>	<i>Meet the needs rate*</i>					<i>M (S.D)</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	
Sales budget	8.9	7.3	21.1	21.1	41.5	3.79 (1.30)	11.4	7.3	30.9	33.3	17.1	3.37 (1.19)
Master budget	8.9	12.2	24.4	20.3	34.1	3.59 (1.31)	8.9	14.6	29.3	28.5	18.7	3.33 (1.2)
Production budget	13.0	7.3	24.4	23.6	31.7	3.54 (1.35)	9.8	1202	29.3	30.9	17.9	3.35 (1.19)
Administrative expenses budget	14.6	10.6	17.1	26.0	31.7	3.50 (1.41)	16.3	14.6	27.6	22.8	18.7	3.13 (1.33)
Direct materials budget	22.0	6.5	23.6	22.0	26	3.24 (1.47)	21.1	8.9	30.9	20.3	18.7	3.06 (1.38)
Cash budget	22.0	12.2	17.9	19.5	28.5	3.20 (1.52)	17.1	17.9	29.3	18.7	17.1	3.01 (1.32)
Overheads budget	19.5	13.0	26.8	17.9	22.8	3.11 (1.42)	16.3	17.1	30.1	26	10.6	2.98 (1.23)
Direct labour budget	23.6	10.6	22.8	21.1	22.0	3.07 (1.47)	22	6.5	34.1	22.8	14.6	3.01 (1.33)
Capital budget	23.6	16.3	17.9	21.1	21.1	3.00 (1.48)	20.3	19.5	26.8	20.3	13	2.86 (1.31)
Flexible budget	39.8	21.1	19.5	8.1	11.4	2.30 (1.37)	29.3	20.3	23.6	20.3	6.5	2.54 (1.28)

*1 = Not at all, 2 = Slightly, 3 = Moderately, 4= Often, 5 = Highly.

Table 5.6 shows that each budgeting practice is used by more than 50% of Libyan companies (moderately used, often used and highly used) with means between 3.79 - 3.00, except for one budgeting practice, which is flexible budget that used by only 39% of respondents with a mean of 2.30. Moreover, there are four budgeting practices are relatively high used, which are adopted by more than 70% of Libyan companies, these budgets namely sales budgeting, production budget, master budget and direct materials budget. While the remainder budgets (i.e. overheads budget, cash budget, direct labour budget, capital budget and administrative expenses budget) are moderately used by respondent companies, as they are used by more than half of Libyan companies and do not exceed 70% of them.

With respect to the extent to which these budgeting practices met their company's needs, Table 5.6 demonstrates that the mean score of all budgeting practices is above the average (3) and less than 3.4, except for two budgeting practices which are capital budget with mean score 2.86 and flexible budget with mean score 2.54. In a comparison between level of usage and level of meeting needs, two things can be seen: firstly, although the level of implementation of budgeting practices is relatively high compared to the level of the implementation of costing practices, the mean score of each of the budgeting practices meets the expectation of less than the mean score of the usage. This means that the respondents are not satisfied enough with the role of budgets in the provision of information that their companies need. Secondly, it can be said that there is harmony between level of usage and level of respondents' satisfaction on meeting the needs, which means the greater the level of application of the practice, the greater the level of meeting the needs of the company.

From Table 5.6, it can be concluded that rates of usage of budgeting practices by Libyan respondent companies were much wider than that for costing practices (Table 6.5). Although most of Libyan respondent companies seem to be familiar with budgeting practices, these findings indicate that the usage rate of budgeting practices were relatively low compared to the reported results in earlier studies.

In their survey study, Puxty and Lyall (1989) reported that about 95% of the surveyed UK companies adopt budgeting systems. Equally, about similar percentage was reported by Drury *et al.* (1993) and they also stated that sales budgeting is likely to be the most important annual budgeting. Guilding *et al.* (1998) conducted a comparative study on using of flexible budgeting practice between the UK companies and NZ companies. The obtained results indicated that use of flexible budgeting practice within UK respondents was more popular compared to that for the NZ respondents, with a usage of 42%, and 27% by the UK and the NZ respondents companies, respectively.

In Australia, a survey study has been conducted to investigate adopting and benefits of MAPs by Australian manufacturing companies (Chenhall & Langfield-Smith, 1998b). It was found from this study that budgeting practices were most popular than that for other practices (e.g. used by 94% to 100% of respondents). In a different survey, Alebaishi (1998) also studied the rate of usage of budgeting practices among Saudi manufacturing companies, in which production budgeting practice was found to be the most popular practice in Saudi manufacturing respondent companies, as it was prepared by 77% of them. Nearly similar percentage (e.g. 76%) of these companies have been using cash budget and sales budget practices, whereas, preparing direct material budget, overhead budget, and direct labor budget, were used by 68%, 60%, and 59%, respectively.

Al-Khater (1999) carried out a survey on management accounting in countries of the Gulf Cooperation Council (GCC). The survey results revealed that most of respondent companies adopted master budget approach. The researcher also reported that 96% of respondent companies were preparing and using sales budget, producing budget, direct labour budget, material budget, overhead cost budget, cash budget, capital expenditure budget, and profit and loss statement, whereas, only 43% of them were using flexible budget practice.

More recently, Joshi (2001) reported that the majority of Indian respondents companies are familiar with most budgeting practices as they were used by at least 85% of them, and he stated that budgeting practices are the highest management accounting practices used by surveyed Indian companies. In a similar study,

Szychta, (2002) investigated the MAPs among Polish companies. The researcher reported that more than three-quarters (e.g. 80%) of the sampled Polish companies prepared or used annual budgeting for the whole company. The results also show that almost 17% of the samples companies were using a complete set of budgeting practices (e.g. sales budget, production budget, etc), while the remaining companies were preparing their annual budgeting using at least two or three operating budgets, *vis*: sales budget, cash budget and overhead cost budget.

In brief, it can therefore be concluded that both earlier and current studies confirm that most of the surveyed companies are familiar with most budgeting practices and hence the budgeting system is the most popular management accounting practice. For this study, one possible reason, especially for Libyan public companies, for using a relatively higher level of budgeting practices compared with costing practices may be the government and legislation requirements to be part of the political construction of reality rather than the economic rationality. For example, according to Law No. 13 of 1981, each public company is required to submit its annual budget statement to the government, because the budgets are mainly derived from the governmental control over public sector enterprises. Furthermore, in the last decade the budgeting practice was a means used to obtain foreign currency (hard currency), which was used to purchase raw materials and production requirements. This may lead to two other explanations: the first is related to why the levels of use are higher than the level of satisfaction in meeting the need expectation. These budgets seem to be used primarily as a means for determining the physical requirements from which formal financial plans are derived, instead of as a means for planing, controlling and and performance evaluation. Hence, the levels of satisfaction of respondents about the use of the majority of budgeting practices are lower than the levels of use. The second explanation concerns the reason why Libyan companies apply operating budgets such as production budgets more than financial budgets such as cash budgets, because the government gives foreign currency to companies based on their need to import of raw materials and production requirements, which are presented in the operating budgets. This may make these companies inflate the estimated amounts of these budgets to obtain the largest possible amount of hard currency;

through the preparation the budgets are based on maximum capacity rather than on targeted capacity, which may make them largely useless for day-to-day management and control in the company.

Method of Budget Preparation

The management accounting literature have provided many methods of budgeting preparation, in which all expenses must be justified for each new period. These methods include incremental budgeting, zero base budgeting, programmes base budgeting, activity- based budgeting and life-cycle budgeting; however, the most common approaches are incremental budgeting, zero base budgeting and activity-based budgeting. The incremental budgeting is traditional method which applies a budget primed using a preceding period's budget or actual performance as a base, usually adjusting for inflation by a percentage increase. The allocation of possessions is based upon allocations from the previous period. However, some practically changes would be tolerable, such as a proposed expansion or decrease in activities.

Zero base budgeting (ZBB) is a method which was developed in the 1970s by a view to avoiding several of the problems of incremental budgeting. Zero-based budgeting establish from a "zero base" and all organisation's function are analysed for planned activities are then put forward to give priority assessments (for the objectives of the organisation), and allocation of funds in order of priority (Horngren *et al.*, 1996; Drury, 2004), regardless of whether the budget is higher or lower than the previous one.

Activity- based budgeting (ABB) is a method of budgeting in which it is based on the allocation of resources to individual activities that causes costs in every functional area of an organisation through defining and analysing the relationship between them. These activities are joined to strategic objectives, and then make a decision how much of the sum budget should be allocated to each activity, it is seen a greater to provides detail on overheads than the traditional budgeting.

In this study, the respondents were requested to indicate usage rate of these three kinds of methods which are used to prepare the budgets. Table 6.7 shows that only one method has been classified under high used to prepare the budgets which is incremental method. It is considered either moderately used, or often and highly used by the most of respondents companies (97.6%) with a mean value of (4.63). However, only 3.2% and 0.8% of respondents were using zero-based budgeting and activity- based budgeting, respectively, and moderately, and often and highly with a mean values of 1.11 and 1.09, respectively.

Table 5.7 Method of Budgets Preparation

<i>Budgeting method</i>	<i>Used level rate (N=123)*</i>					<i>Mean</i>	<i>Rank</i>	<i>S.D</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>			
Traditional incremental method	2.4	0	2.4	22.0	73.2	4.63	1	.760
Zero-based budgeting (ZBB)	94.3	2.4	1.6	1.6	0	1.11	2	.476
Activity- based budgeting (ABB)	95.9	.8	2.4	0	0.8	1.09	3	.479

*1 = Not at all, 2 = Slightly, 3 = Moderately, 4= Often, 5 = Highly.

All results from both earlier and current studies confirm that the more advanced method practices, such as zero-based budgeting and activity-based budgeting, were not popular. For example, Abdel-Kader and Luther (2008) found that only 19% of the UK respondent companies used the ABB with a score mean of 2.34, from which 16% were using ZBB with a score mean of 1.99. Szychta (2002) carried out a similar study in Poland and found that 46% of respondent companies use incremental budgeting, from which 35% applied ZBB. Similarly, low applications of ABB and ZBB were also reported by Joshi (2001) in Indian context. The researcher reported that ABB was used by 7% of respondents compared to 5% of respondents were using ZBB. Surprisingly, although Chenhall and Langfield-Smith (1998b) classified the adoption of ABB under low adoption (ranked 17), it was being used in 78% of Australian manufacturing companies.

5.5.3 Performance Measurement

An essential part of the MAS is a provisional information and interpretation of organisation's performance for ensuring success in all forms of organisation. Many researchers (e.g. Govindarajan & Gupta, 1985; Ittner & Larcker, 1998b;

Kaplan & Norton, 1992, 1996; Nanni, Dixon, & Vollmann, 1992; Simons, 1987; Simons, 1990) suggested that the organisation should emphasis on both traditional performance such as return on investment or net earnings and non-financial performance such as market share, customer satisfaction, efficiency and productivity, product quality, and employee satisfaction.

5.5.4 Performance Measurements Practices in Libyan Companies

The present study investegate both financial and non-financial practices which include: residual income, economic value added, return on investment, meeting budget target, divisional profit, benchmarking, customer satisfaction, market share, employees' satisfaction, and balanced scorecard. The respondents were requested in Section F1 of the questionnaire to indicate both to what extent they have been using ten types of financial and non-financial performance practices and to what extent these performance measurement practices met their companies' needs.

Table 5.8 Performance Measurements Practices

<i>Performance measurement practices</i>	<i>Used level percentage (N=123)*</i>					<i>M (S.D)</i>	<i>Meet the needs rate*</i>					<i>M (S.D)</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	
Meeting budget target	40.7	17.9	19.5	17.1	4.9	2.28 (1.29)	43.1	13.0	23.6	15.4	4.9	2.26 (1.29)
Return on investment	42.3	17.9	22.0	13.8	4.1	2.20 (1.21)	43.1	14.6	23.6	16.3	2.4	2.20 (1.23)
Customer satisfaction	50.4	14.6	26.0	4.1	4.9	1.98 (1.17)	53.7	13.0	20.3	11.4	1.6	1.94 (1.16)
Benchmarking	51.2	19.5	15.4	11.4	2.4	1.94 (1.16)	52.8	17.1	11.4	15.4	3.3	1.99 (1.25)
Market share	57.7	14.6	17.9	5.7	4.1	1.84 (1.15)	56.9	13.0	21.1	7.3	1.6	1.84 (1.1)
Divisional profit	53.7	29.3	10.6	4.9	1.6	1.72 (.95)	57.7	17.1	13.0	11.4	.8	1.8 (1.1)
Employees' satisfaction	63.4	13.0	11.4	12.2	0	1.72 (1.08)	61.8	9.8	20.3	6.5	1.6	1.76 (1.09)
Economic value added	87.8	5.7	3.3	3.3	0	1.22 (.66)	63.4	13.8	15.4	7.3	0	1.67 (.99)
Residual income	91.1	4.1	.8	2.4	1.6	1.20 (.72)	71.5	12.2	7.3	8.1	.8	1.54 (.99)
Balanced scorecard	96.7	0	.8	2.4	0	1.09 (.50)	82.9	7.3	4.1	4.1	1.6	1.43 (.87)

*1 = Not at all, 2 = Slightly, 3 = Moderately, 4= Often, 5 = Highly.

It can be noted from Table 5.8 that the values of mean of usage of all the community performance category (financial and non-financial) are below 3 (i.e. under moderately use). However, the highest two rates of usage and mean values are for financial performance measurement practices, which are meet budget target with a rate of usage of 41.5% and a mean value of 2.28, and return on investment has a rate of usage of 39.9% and a mean value of 2.2, which both show mean values higher than 2.

In addition, the fourth and fifth columns of Table 5.8 indicate the rate levels and mean score of meeting the needs of each performance measurement practice. Similarly, the mean score of all items is under the average (i.e. under 3), which reflects the disappointment of the respondents to meet these practices of their companies' requirements. Unlike budgeting practices where the level of usage is higher than the level of meeting the needs of most budgeting practices, these two dimensions (i.e. level of usage and level of meeting the needs) of performance measurement practices are very close and some of them are the same. This may be due to the fact that the levels of use are very low, so the levels of meeting needs expectation was also very low. This means that managers in Libyan companies generally consider the performance measures least important practices as drivers of their strategic progress and success.

In previous studies, in their empirical study, Drury *et al.* (1993) reported that more attention was given to non-financial performance measurement practices which were extensively used than that for financial ones, among the UK respondent companies. For example, 79%, 73%, 72%, and 86% of these companies have been using customer satisfaction/product quality, customer delivery efficiency, supplier quality and delivery reliability, and scrap/defects/rework, respectively; whereas, 20%, 55%, 61% and 43% were using residual income, return on investment, target profit and target cash flow, respectively.

Chenhall and Langfield-Smith (1998b) categorised the usage of return on investment (96%) and non-financial measures (95%) as high adoption, while balance scorecard (88%), customer satisfaction (88%) and employee attitude

(88%) were classified under moderate adoption. Whereas, using of benchmarking with the outside organisation (77%) and residual income were classified as low adoption. The one aim of Shields *et al.* (1991) study was insights into the extent of adoption performance measures to evaluate divisional managers in US and Japan. They reported that sales were the most popular performance measurement practices among Japanese respondent companies, whereas return on investment (ROI) is the most common in US respondent companies. While, market share and residual income were being used by 12% and 20% of Japanese respondent and 19% and 13% among US respondent companies.

In India, Anderson and Lanen (1999) summarized that performance evaluation practices were increasingly within Indian companies based on quantitative measures and external perspectives. Therefore, the common performance measurements were used by them was productivity, customer satisfaction, and on-time delivery. Joshi (2001) found that there were three performance measurements practices among 8 management accounting practices which were classified as high adoption, these practices were return on investment (100%), budget variance analysis (100%) and divisional profit (100%). Customer satisfaction surveys were using by 80% of the respondents so it was classified below moderate adoption. While, 53%, 43%, 40%, 32% and 22% of them were adopting non-financial measures, residual income, balance scorecard, benchmarking with outside organisations and employees attitude respectively, and they were under low adoption categorisation. The study concluded that Indian companies still depend on using financial measures for performance evaluation more than reliance on non-financial.

In a similar study on MAPs within UK companies, Coad (1999) reported that qualitative performance measure was being used by 68% of respondents and balanced scorecard by only 17.9%. Szychta also reported that 35% of respondent companies in Poland were adoption return on investment. In another study, Shields *et al.* (1991) reported that market share practice was used by 19% and 12% in the US and Japan.

In the Libyan context, Leftesi (2008) revealed that these practices were not relatively common in Libyan respondent companies. He pointed out 37.5% of them were using return on investment, 35.8% of them were using divisional profit, 23.5% using customer satisfaction survey, 14.8% only using residual income/ Economic value added, whereas non of them were using Balanced scorecard.

Therefore, the obtained results from this study were inconsistent with those of previous studies conducted in both developed and developing countries, such as in India and Australia. The adoption rates of these performance measurement practices were between 22 % and 100% (see Chenhall & Langfield-Smith, 1998b; Joshi, 2001). However, some of these practices were consistent with other previous studies such as adoption rates of return on investment (ROI), which was 39.9% in this study and was reported 35% in the study conducted by Szychta (2002) in Poland and employee's satisfaction was 23.6% in the current study and was 22% as reported by Joshi (2001) in India. Moreover, the adoption rate of market share practice was 27.7% in the current study, which is relatively higher than that reported by Shields *et al.* (1991) as 19% and 12% in the US and in Japan, respectively.

To sum up, the findings of the present study indicate that Libyan companies do not rely on performance measurements; instead, they may depend on employing a range of other kinds of practices, such as cost practices or budgeting practices to ensure the accuracy and validity of their performance. It might be that the business environment in developing countries encourages the companies to adopt the practices to deal with control rather than the practices to build up a company's value. Therefore, the findings do not match the recommendations suggested by several researchers (e.g. Banker, Potter, & Srinivasan, 2000; Ittner & Larcker, 1998a; Kaplan & Norton, 1992; Otley, 2001; Rappaport & Nodine, 1999) to adopt financial and non-financial performance measurements for ensuring success in all forms of organisation. According to the researcher's best knowledge, one explanation for this result is the shortage of the Libyan accounting curriculum in educational institutions and universities, which gives rise to two things: firstly, the

curriculum in educational institutions and universities places heavy emphasis on financial accounting, whereas management accounting is limited (two or three models). Secondly, the contents of management accounting in these institutions and universities focus primarily on accounting cost, budgets and short-term and long-term decision-making practices, and do not sufficiently address the issue of performance measurement. Therefore, the researcher expects that most Libyan companies evaluate their performance by using net income, which is presented in financial reporting (i.e. financial statements).

5.6 The Purposes of MAPs

A wide purposes of MAS practices has been offered in the literature of management accounting, in order to provide relevant information for different purposes such as planning, controlling and performance measurement to assist managers make better decisions (Drury, 2008). This section aims to explore different purposes of MAPs in Libyan companies.

5.6.1 The Purposes of Cost Practices

It has been stated that costing practices can be adapted to generate relevant information for strategic purposes involving product planning, such as product pricing, and for managerial purposes, such as cost reduction and performance measurement (Chenhall, 2005; Kaplan & Cooper, 1998; Player & Keys, 1995). Table 5.9 summarises 9 different purposes that can be used for strategic decision and operational decision to empirically classify underlying scopes of usefulness of cost system. The respondents were requested to find out whether their cost system was used for each of these purpose, as well as they been asked to indicate to what extent they were satisfied with their cost system for these purposes. These purposes have been modified from management accounting literature, for example (Innes & Mitchell, 1995; Innes et al., 2000).

The Table 5.9 shows the mean values and usage rates of inclusive nine purposes, and the mean values of their satisfaction levels. It can be seen from this table that the mean values of the use cost information are below 4 for all purposes, as the

highest used application is for determining the products/services cost with a mean value of only 3.70. The second most important purpose is budget preparation with a mean score of 3.68 and 81.3% rate of usage. While, the Table indicate the lack use of costing practices for making product/service mix decisions, strategic planning and measuring performance, which their means are less than average (3). Furthermore, it is noted that rate of frequency of used generated level of respondents' satisfaction, for example, the highest used application of costing practices is for determining the products/services cost; it also obtained on the highest level of satisfaction.

Table 5.9 Purposes of Costing Practices

<i>The purposes</i>	<i>Frequency of used</i>			<i>Level of satisfaction</i>	
	<i>Rank</i>	<i>Mean</i>	<i>Rate of use 3, 4 and 5 (%)</i>	<i>Rank</i>	<i>Mean</i>
Determining the cost of products or services	1	3.70	80.5	1	3.01
Budget preparation	2	3.68	81.3	2	2.98
Valuing inventory for external reporting (i.e. preparing financial statements)	3	3.24	65	3	2.89
Pricing products or services	4	3.15	66.6	4	2.76
Making product cost reduction decisions	5	3.12	68.3	5	2.63
Controlling operations	6	3.06	68.3	6	2.54
Making product / service mix decisions	7	2.52	48.9	7	2.39
Strategic planning	7	2.52	54.5	8	2.37
Measuring performance	8	2.49	51.2	9	2.36

Moreover, these findings show the different trend compared with Schoute's study (2009), which was conducted on Dutch medium manufacturing companies. It has been reported that the highest adoption rates were product pricing (95.2%) and budgeting (90.2%), whereas stock valuation (77.4%) and cost reduction (69.2%) scored least usage rates, while performance measurement (64.7) was the lowest usage rate. However, the order of these purposes in both studies, to some extent is similar, for example the second most important purpose is budget preparation in both studies, while the third most important is stock valuation; and in both studies, it also reported that performance measurement purposes the lowest rate usage.

According to respondents' satisfaction with the usage of their cost system for the nine purposes applied, they have been requested to express the extent of their satisfaction regarding the use the cost system for each of these purposes. A summary of these responses are presented in Table 6.9, which indicates low level of respondents' satisfaction with all of the nine purposes, as the highest satisfaction is for the use cost system for determining the products/services cost, which has a mean value just exceed 3 (i.e. 3.01). Whilst, the mean values for the other purposes ranged between 3 and 2.3, which means that the level of respondents' satisfaction is low. Therefore, it is noted that the rate of frequency of used generated level of respondents' satisfaction, for example, the highest used application of costing practices is for determining the products/services cost; it also obtained on the highest level of satisfaction.

The results indicate that Libyan companies devote more attention to product planning and pricing and for financial statement preparation than using cost practices for cost reduction, control and performance evaluation purposes, which supports a view Libyan accounting places greater emphasis on financial accounting. This implies that companies in Libya may place their main priorities on the cost accounting data for planning and financial statement preparation, especially to meet financial accounting inventory valuation requirements. This may extend the financial accounting mentality to make product costing practice following, and becoming subservient to, financial accounting practice. In addition, as mentioned in Chapter one that Libya is undergo a phase of transition from centrally planned economy to market economy, one might argue that product cost information may be necessary in determining selling prices, whereas, the price-takers is not appropriate, because the Libyan companies could be operate now within a competitive environment. Therefore the recently-developed practices such as ABC may be needed to increase the accurate product cost information and avoid producing distorted product cost information and influence decision-making.

It is important to mention here that these results are largely in line with the results referred to in the previous section. Where it can be said that Libyan companies are

using the full costing practice for determining the cost of their products or services and also for determining the cost of the completed production stock and under-operation stock for the purpose of preparing the financial statements, they may also use the variable costing practice to prepare the budgets. On the other hand, both previous sets of results (i.e. in this section and the previous section) support each other; that is, Libyan companies do not place greater emphasis on using costing practices for controlling, as it attains the sixth rank in Table 5.9 which consists of nine purposes with a mean score of 3.06, supported by a low level of using standard costing practice with a mean score of 2.51 (see Table 5.5). Similarity, Table 5.5 shows a low adoption rate of a range of recently developed practices, including ABC, quality costing, target costing and life-cycle costing, which have been proposed as ways of linking operations to the company's strategies and objectives; this is confirmed in Table 5.9, which indicates the low use of costing practices for strategic planning and measuring performance. This shortage, whether in the level of use or the purposes of costing practices in Libyan companies may be a reason behind the lack of respondents' satisfaction with them.

5.6.1.1 The Purposes of Budgets Practices

Budgets are perceived to be financial plans that provide information for strategic planning and controlling, as well as for discovering problems and solve them (Horngren, Bhimani, Foster, & Datar, 1999; Tsamenyi et al., 2004). Within the literature of management accounting there are multipurpose role of budgets that have been extensively discussed in popular management accounting textbooks (e.g. Atkinson *et al.*, 2001; Drury, 2008; Garrison & Noreen, 2000). These purposes can be used for: *planning* as direct operations of an ideal future and successful method to achieve it (Ackoff, 1981), *evaluate performance*, by comparing between planed performance, attained performance and computing variances, as well as adoption the necessary remedial action (Anthony *et al.*, 1992; Drury, 2008; Lyne, 1988). *controlling the activities*, meeting between the target objectives which placed down at the planning stage and reached objectives at the end of the implementation stage (Garrison & Noreen, 2000), *co-coordinating*

activities communicating; coordination means that integration between all objects of organisation's departments to achieve the organisation's broad goals (Garrison & Noreen, 2000), whereas communicating means to facilitate the dealing process between managers and employees that is necessary to aid the operationalisation of managerial objectives (Drury, 2008; Tsamenyi *et al.*, 2004), *forecasts*, the prediction of financial and non-financial events which can occur in the future, and *motivation*, by providing a standard objectives which employees and managers strive to reach (Drury, 2008).

According to the reviewed literature, one budget could be employed for several purposes. For instance, sales budget can be used for planning, evaluate performance and motivating managers. However, Cowen and Midaugh (1990) pointed out that adopt one budget to be used for different purposes may cause some perplexity as there are inevitable requirements for any budget for any purpose. For example, the budgets prepared for planning should be realistic, whereas budgets used for motivating purpose required to be based on possible outcomes. While using budgets as evaluate performance device should be amended to eliminate the impact of elements out of control individuals appraised.

Table 5.10 aims to identify the extent to which budgets are used to uphold day-to-day operating decisions and to which the respondents are satisfied with this usage in the Libyan companies. The most prominent purposes which budgets serve that emerged from Table 5.10 is planning both for financial position and annual operations as they are the highest mean values ranking on the scale (3.36 and 3.31, respectively), and have also the highest rate of usage (e.g. 75.6% and 77.3%). While controlling and coordinating activities the activities are identified as next to least important in Libyan companies with mean scores of (3.15 and 3.03, respectively) and (74.8% and 71.5%, respectively) of rate of use.

On the other hand, it is clear that responsibility reporting and forecasting external non-financial data adoption of budgets are perceived as last important, since they have the lowest mean values ranking on the scale (2.61 and 2.58, respectively) and (55.2% and 56.1%, respectively) rate of use. According to respondents' level of satisfaction, the important point from the Table (5.13) is that for every purpose

listed the score of respondents' satisfaction are lower than usage score, hence their means scores are ranging from less than 3 and above than 2.3. This could be interpreted the lack of respondents' satisfaction on the role of budgets. In other word, the respondent considered the usage of budgets for purposes listed should be more important.

Table 5.10 Purposes of Budgeting Practices

<i>The purposes</i>	<i>Frequency of used</i>			<i>Level of satisfaction</i>	
	<i>Rank</i>	<i>Mean</i>	<i>Use rate 3, 4 & 5 (%)</i>	<i>Rank</i>	<i>Mean</i>
Planning financial position; cash flows	1	3.36	75.6	1	2.94
Planning annual operations	2	3.31	77.3	2	2.87
Controlling the activities of the business units	3	3.15	74.8	3	2.78
Coordinating activities across the business units	4	3.03	71.5	4	2.73
Communicating plans	5	2.94	68.8	6	2.66
Measuring and evaluating managerial performance	5	2.94	62.6	5	2.72
Motivating managers to strive to achieve targets	6	2.83	61	7	2.65
Responsibility reporting: distinguishing between controllable & non-controllable items	7	2.61	55.2	8	2.41
Forecasting external non-financial data (e.g. government regulations, competitors' actions)	8	2.58	56.1	9	2.36

Generally, most of previous studies reported higher important purposes of budgets than present study. However, the finding of this study is consistent with previous studies related to the high role of budgets for planning and controlling. Joshi (2001) found out that 93% of Indian respondents companies were adopting budgets for controlling cost and 91% of them were using budgets for planning. Similarly, in Australia context these purposes (planning and controlling) were reported the highest important purposes of budgets as 100% of Australian surveyed companies adopted the budgets for planning and 99% of them adopted the budgets for controlling (Chenhall & Langfield-Smith, 1998b). Likewise, in developing countries, Tsamenyi *et al.* (2004) found the most significant budgets purposes of four large Ghanaian companies were planning and controlling,

equally, in his study, Leftesi (2008) reported that 91.4% of Libyan manufacturing companies used the budgets for planning purpose.

Furthermore, the current study's findings are consistent with Tsamenyi *et al.* (2004) related to next minimally purposes of budgets which are coordination, communication, performance evaluation and motivation. Equally, Chenhall and Langfield-Smith (1998b) reported that use the budgets for coordination had 5 rank scale, with rate of usage 94% of Australian companies. Although Leftesi (2008) found out that adoption budgets for coordination activities had 7 rank scale among all MAPs, and its adoption rate did not exceed 60%.

In brief, generally, the budgets are minimally used for nine listed purposes, as their mean scores are ranging from 3.36 to 2.58, and their rates of use ranging from 75.6% to 56.1%. Therefore, the purposes of budgets in Libyan companies are not as meaningful as for most pervious studies' results. In addition, there is paradox between the findings in term of the usage of budgets and purposes of them, because the means of usage are ranging from 3.79 to 4.30 and all of them above than 3, except flexible budget (Table 5.9). Whereas, the mean values of purposes of budgets did not exceed 3.36, and most of them are below 3.0. It is most possibly due to those Libyan respondents companies which are obliged to prepare those budgets by law, especially Libyan state-owned companies, but they are not interested to use them to support day-to-day operating decisions. Consequently, the respondents' satisfaction level about the budgets practices for each listed purposes are very low as it was ranging between 2.94 – 2.36. On the other hand, the findings of this study is consistent with previous studies related to the purposes order, since the most impotent purpose of budgets are planning and controlling in both.

In comparing these results with the previous results (i.e. budgets usage), it appears that budgets are used primarily as management financial planning and operation tools, through using sales and production budgets. Although as mentioned earlier, the government legislation forced Libyan companies, especially state-owned, to prepare their budgets, it could be argued that awareness of the importance of these budgets began to grow among these companies, and they are no longer just an

annual ritual. However, they are still used less as a tool for stimulating managers to coordinate with other departments and to speculate about future prospects.

5.6.1.2 Purposes of Performance Measurement Practices

Performance measurement information provided is considered a very important MAS device used to facilitate management of strategic resources (Simons, 1987). It means that performance information allows the close monitoring of the actual standards reached by such operations to ensuring that results of the period are as expected.

McAdam and Bailie (2002) argued that the purpose of performance measurements is to support both actions and strategies, so the management should keep match between these three elements (strategy, actions and measurements).

In this context, Atkinson, Waterhouse, and Wells (1997) pointed to that the purposes of performance measurement system should be:

- To evaluate the efforts of employees and suppliers, the element of its internal stakeholder group, and the expected returns from customer groups;
- To evaluate whether achieving the primary objectives support stakeholder group to keep on to contribute in this company;
- To evaluate whether the company's planning and the agreements (secondary objectives) are good to achieve the primary objectives,
- To evaluate the design, operations, procedures and progressions to be adequate for implementation of secondary objectives.

In response to the purposes of strategic performance measurement systems, the present study examined the extent of usage of a diverse set of financial and non-financial performance measurements for a set of purposes. The respondents were requested in Section F2 in the questionnaire to indicate the extent to which their performance measurements system is used for each 10 listed different purposes. In

addition, they were asked to identify the level of satisfaction with their performance measurement systems for these purposes. These purposes have been modified from abroad management accounting literature, for example (e.g. Ittner & Larcker, 2001; Kaplan & Norton, 1996; Malmi, 2001; Norreklit, 2000).

From Table 5.10, it can be noted that score mean and usage rates of all 10 purposes were very low and below the average, since their means ranging from 1.69 to 2.54 and their usage rate ranging from 25.2% to 51.3%. The other interesting point is that these means and usage rates are very close to each other. However, the most prominent purposes which performance measurements serve is providing information to evaluate and monitor the key activities as this purpose is the highest means ranking on the scale (i.e. 2.54), and have the highest rate of usage (51.3%). The means scores of the following other three purposes of the performance measurements are evaluation of product/service quality, measurement of efficiency, and evaluation of investment, which their score means are 2.46, 2.44 and 2.37, respectively, and their rates of usage are 48.7%, 43.9% and 46.4%, respectively. While the last four purposes of performance measurement are measurements of performance in terms of customer satisfaction (2.11 means, and 39.8 rate of usage), measurement of individual or team-based performance (2.08 means, and 39.9 rate of usage), measurement of performance in terms of employee satisfaction (1.96 means, and 34.2 rate of usage), and measurement of innovation (1.69 means, and 25.2 rate of usage). The common characteristic of these four purposes is that they are non-financial purposes.

According to respondents' level of satisfaction, Table 6.11 provides a summary of the average responses to these purposes, the important point from this table is that for each purpose listed the score of respondents' satisfaction are lower than usage score. It means that respondents do not satisfy on the role of performance measurements in terms of these purposes. Therefore, the findings presented in this table indicate that there is some inconsistency between the scores of frequency of used performance measurements for listed 10 purposes (column 3), and the scores of level of satisfaction (column 6) in the table.

Table 5.11 Purposes of Performance Measurement Practices

<i>The purposes</i>	<i>Frequency of used</i>			<i>Level of satisfaction</i>	
	<i>Rank</i>	<i>Mean</i>	<i>Use rate 3, 4 & 5 (%)</i>	<i>Rank</i>	<i>Mean</i>
Information provided to enable managers to evaluate and monitor key activities of the company unit	1	2.54	51.3	2	2.32
Evaluation of product/service quality	2	2.46	48.7	1	2.41
Measurement of efficiency	3	2.44	43.9	5	2.17
Evaluation of investments	4	2.37	46.4	4	2.23
Provide information on fluctuations (trends) in performance across different time periods (e.g. weekly, monthly, quarterly etc.)	5	2.28	46.4	3	2.30
Provide information to enable your company units to compare their area of responsibility with similar units in the industry (e.g. market share, costs, etc)	6	2.14	41.5	6	2.02
Measurement of performance in terms of customer satisfaction	7	2.11	39.8	7	1.92
Measurement of individual or team-based performance	8	2.08	39.9	8	1.91
Measurement of performance in terms of employee satisfaction	9	1.96	34.2	9	1.81
Measurement of innovation	10	1.69	25.2	10	1.62

The obtained results from this study are not similar to Ittner, Larcker, and Randall (2003) findings who found that greater satisfaction in companies use of broad set of financial and non-financial measures. Similar to Ittner and Larcker (1998a), Towers and Perrin reported that most companies using BSC were satisfied of applying it.

To sum up, unlike costing and budgeting practices, the usage and purposes of use of all performance measurement practices are very low. This is possible for the reasons that were mentioned in a previous section, such as the Libyan business environment is in a transition economy, lack of active professional accounting institutions, and the characteristics of Libyan companies as most of them are state-owned. In addition, some performance measurement practices, especially non-financial performance measurements such as ABB and benchmarking practices are not feasible and practical under Libyan conditions as a developing country suffers from lack of infrastructure components such as telecommunications,

transportation, networks and unreliable power supplies. In this context, Peasuell (1993) argues that implementation of advanced techniques such as ABC will be difficult in developing countries due to the lack of infrastructure. Therefore, it can be concluded that Libyan companies still adopt traditional MAPs such as traditional budgeting and costing to deal primarily with internal matters, especially production capacity and financial control, and to some extent it is used for planning and control purposes, especially with respect to usage of budgeting practices. Based on this, the MAPs in Libya may be around the second stage, according to the statement of the scope, purposes and concepts of management accounting which was issued in 1989 by the International Federation of Accountants (IFAC).

5.7 Management Accounting Change

5.7.1. Theoretical Dimensions of Management Accounting Change

Management accounting change has become a popular issue for many researches over more than two decades. Although in fact, there is now a considerable and increasing literature which suggests that change has become a prominent aspect of contemporary MA practice, there are multiple dimensions of this change, which have been neglected by researchers, as they focus on change per se rather than distinguishing it through a categorisation by type. The most researches argue that change is not only a regular common of practice but that it is also far from uniform in the form which it adopts. However, there has been modest attempt by researchers to categorise change other than by the MA sub-systems in which it has taken place. This study has categorised MAPs change into five different types which may aid analysis of change sensitivity. These are:

a) Addition

Addition means expansion of the MAPs by introduction of new practice, whether this practice is modern such as ABC and BCC or traditional such as standard cost and variable cost [e.g. Simmonds (1981), Clark (1985), Innes and Mitchell (1990), Shields and Young (1991), Bright, Davies, Downes, and Sweeting (1992), Kaplan

and Norton (1992), Drury *et al.* (1993), Friedman and Lyne (1995), (Yoshikawa, Innes, and Mitchell (1995), Dutton and Ferguson (1996), and McLaren (1999)].

b) Replacement

Replacement implies replaces existing management accounting practice with introduction of new one whether replacement of traditional practice with modern, or replacement of modern practice with traditional (Bright *et al.*, 1992; Burns *et al.*, 1999; Darlington *et al.*, 1992; Drury *et al.*, 1993; Gosselin, 1997; Innes & Mitchell, 1990; Jones & Dugdale, 1998; Kaplan & Norton, 1992; Shank, 1996).

c) Output modification

It means adaptation of MAS to modify of information output (e.g. provision of information by monthly instead of annually or weekly instead of monthly) [e.g. Kaplan (1985), Innes and Mitchell (1995), Innes and Mitchell (1990), Gosselin, (1997), Granlund (2001)].

d) Operational modification

It involves adaptation of the practical operation of the MAPs (e.g. the use of a pre-determined as opposed to an actual overhead rate in an existing costing system or the use of regression analysis as opposed to an inspection basis for separating fixed and variable costs) [e.g. Innes and Mitchell (1990), Kaplan and Norton (1992), Abernethy and Brownell (1999), Burns *et al.* (1999) and Vaivio (1999)].

e) Reduction

Reduction implies the elimination of a MAPs with no replacement (e.g. leaving of budgeting or the cessation of break-even analysis) [e.g. Wallander (1999)].

5.7.2 Management Accounting Change in Libyan Companies

This section attempts to provide some analytical insights into novel typology and patterns of MA change within Libyan companies. The respondents were asked to classify MA changes, which have occurred in their own companies, in accordance

with the five types of change. Furthermore, the level of success of these changes is investigated in this study, by asking respondents to indicate the success rate of each of the five dimensions of change in their companies.

1. Change in Cost Practices

Table 5.12 below is based on above five dimensions of the cost system change, and numbers of changes (no change, 1 to 2 changes, 2 to 3 changes, 3 to 5 changes and more than 6 changes). The Table indicates that output modification of cost information is the most common form of change, as one third (33.4%) of respondent companies have taken this change with the difference in the number of time a change, but most of them (22.8%) adopted this type of change once to twice during last 5 years. Introduction of new practices change types where no costing practices previously existed was done by 30.9% of Libyan companies (17.1% 1 to 2 changes, 7.3% 3 to 4 changes and 6.5% 4 to 6 changes). Introduction of new practices as replacement for existing ones and modification of the technical nature of costing practice were low were adopted by 24.4% and 20.3% of sampled companies, respectively (13.8 % 1 to 2 changes, 6.5 % 3 to 4 changes and 4.1 % 4 to 6 changes for first one, and 9.8 % 1 to 2 changes, 5.7 % 3 to 4 changes and 4.9 % 5 to 6 changes for second one). Whereas, removal of a costing practice with no replacement was the lowest type of change, which was done by only 10.6%. Moreover, it can be noted that wherever the number of change increased, the number of companies decrease, for example no change has the highest percentage in all five changes dimensions, while 1 to 2 changes is very lower than no change and higher than 3 to 4 changes, and 3 to 4 change is higher than 5 to 6 changes, whereas no single company had more 6 changes within last 5 years for any kind of change.

In addition to analysing the volume of costing changes and different change dimensions, this table (Table 5.12) also demonstrates the levels of success of these changes. It also shows the volume of changes in costing practices is positive closely linked to the high success level. For example, at 1 to 2 changes the means of success are range between 3.47- 3.77, while at 5 to 6 changes the means of success are 4 or above. The possible explanation for this association that the

companies which had large volume of changes they also had experience to implement and get benefit from new changes more than those had little changes. However, in general, the average success of all type of changes and all number of changes are relatively high as all of them exceed 3.00.

Table 5.12 Change in Cost Practices

	<i>Replacement</i>		<i>Addition</i>		<i>Output modification</i>		<i>Operational modification</i>		<i>Reduction</i>	
	<i>%</i>	<i>SUC*</i>	<i>%</i>	<i>SUC</i>	<i>%</i>	<i>SUC</i>	<i>%</i>	<i>SUC</i>	<i>%</i>	<i>SUC</i>
No change	75.6	-	69.1	-	66.7	-	79.7	-	89.4	-
1 to 2 changes	13.8	3.47	17.1	3.77	22.8	3.75	9.8	3.67	4.9	3.57
3 to 4 changes	6.5	3.88	7.3	3.44	5.7	3.5	5.7	3.17	4.1	3.6
5 to 6 changes	4.1	4.2	6.5	4.14	4.9	4	4.9	4	1.6	4
More than 6	0	-	0	-	0	-	0	-	0	-

SUC: Degree of success

2. Change in Budgeting Practices

Table 5.13 shows the frequency pattern of change for each dimension during the last 5 years. Similarly in cost practices the modification of budgets system is most common type of change, it is about one third (32.5%) of respondent companies in which this change took place. Most of these companies (18.7%) did this change for 1 to 2 times, and (8.1%) adopted this changes from 3 to 4 times, while (2.4%) and (3.3%) took these changes from 5 to 6 and more than 6, respectively during last 5 years. While over (30%) of respondents reported introduced new budgets practices change types where no budgets practices previously existed (11.4% 1 to 2 changes, 9.8% 3 to 4 changes and 9.8% 4 to 6 changes). The modification of the technical nature of costing practice or system change types was adopted by (26.8%) of respondents; most of them (14.6%) also carried out this change from 1 to 2 times within last 5 years. Introduction of new practices as replacement for existing and removal of a costing practice or systems with no replacement were the lowest type of change which and it was made by only (22%) and (13%) of respondents, respectively; 1 to 2 changes the most common volume of change as it was (15.4%) for replacement type and (7.3%) for reduction type. Similar to cost system, the majority of success average of changes that occurred in budgets system are relatively high

Table 5.13 Change in Budgets Practices

	<i>Replacement</i>		<i>Addition</i>		<i>Output modification</i>		<i>Operational modification</i>		<i>Reduction</i>	
	<i>%</i>	<i>SUC*</i>	<i>%</i>	<i>SUC</i>	<i>%</i>	<i>SUC</i>	<i>%</i>	<i>SUC</i>	<i>%</i>	<i>SUC</i>
No change	78	-	69.1	-	67.5	-	73.2	-	87	-
1 to 2 changes	15.4	3.37	11.4	3.25	18.7	3.43	14.6	3.44	7.3	3.55
3 to 4 changes	2.4	4	9.8	3.64	8.1	3.55	8.1	3.78	1.6	2.5
5 to 6 changes	4.1	4	9.8	4.25	2.4	4.25	4.1	4.17	.8	4
More than 6	0	-	0	-	3.3	4	0	-	3.3	3.75

SUC: Degree of success

3. Change in Performance Measurement Practices

The numbers of changes in performance measurement is small in all 5 dimensions, as they did not exceed 10%, except for addition of new practices change type which was 13%. However, the volume of changes of all 5 dimensions is very close to each other, they range from 13% to 8.9%, as well as there is no difference between the percentages of volumes of changes for each dimension, for instance the percentage of 1 to 2 changes of replacement dimension is 4.1% and percentage of 3 to 4 changes of same dimension is also 4.1%, and thus for other dimensions (see the Table 5.14), which perhaps was due to the low rate of such change. In addition, the levels of success of these changes are lower than those perceived in cost system and budgets system, because the success mean of some change are below 3 (e.g. 1to2) change of replacement, 3-4 change of output modification and reduction and 5- 6 change of addition.

Table 5.14 Change in Performance Measurement Practices

	<i>Replacement</i>		<i>Addition</i>		<i>Output modification</i>		<i>Operational modification</i>		<i>Reduction</i>	
	<i>%</i>	<i>SUC*</i>	<i>%</i>	<i>SUC</i>	<i>%</i>	<i>SUC</i>	<i>%</i>	<i>SUC</i>	<i>%</i>	<i>SUC</i>
No change	91.1	-	87	-	91.1	-	90.2	-	91.1	-
1 to 2 changes	4.1	2.4	4.9	3	2.4	3.33	3.3	2.75	2.4	3.33
3 to 4 changes	4.1	3.2	4.1	3.2	1.6	2.5	2.4	3.33	2.4	2
5 to 6 changes	.8	4	3.3	2.5	1.6	4	.8	4	4.1	3.2
More than 6	0	-	.8	4	3.3	4.75	3.3	4	0	-

SUC: Degree of success

5.8 Summary and Conclusion

This chapter has mainly focused on the current use of MAPs in Libyan companies and purposes of these practices. The results refers that the adoption rates of most of the MAPs in Libyan companies surveyed in this study are lower than that were reported in other countries, such as USA, UK, Australia and India. In addition, although literature of management accounting introduce multipurpose role of MAPs (e.g. Atkinson *et al.*, 2001; Drury, 2008; Garrison & Noreen, 2000), the current study reported the purposes of MAPs in Libyan companies are very limited.

Interestingly, the adoption rates of budgets practices in Libyan companies are more popular that cost and performance measure practices, as the mean of the most budgets practices are more than average, while there are only two cost practices that Libyan companies seem to be familiar with, which are full cost and variable cost. Whereas, not only the mean of all performance measure practices were not less than average, but also less than 2.00, except for the meeting budget target and return on investment for which the mean values were 2.28 and 2.20, respectively. These low rates of use MAPs reflect on purposes which MAPs used for and satisfaction level of participants about purposes.

Moreover, the findings in this study also provide some analytical results into novel typology and patterns of MA change within Libyan companies and success level of these changes. They indicated that all dimensions of MA changes namely addition, replacement, output modification, operational modification and reduction in Libyan companies are not pervasive phenomenon. However, the most of these few changes that occurred were high success.

The following chapter investigates the effect of contingent factors on MAPs, as well as effects of these factors on organisational performance through MAPs.

Chapter Six
Effectiveness of Management Accounting Practices
and the Relationship with Selected Contingent
Factors

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6.1 Introduction

The purpose of this chapter is to present the obtained results for the third and fourth research objectives, which are:

- To examine the relationship between contingent factors and MAPs in Libyan companies.
- To examine the relationship between contingent variables and organisational performance through management accounting practices in Libyan companies.

In order to accomplish these objectives, the relationships between selected contingent factors, which are suggested by the literature review in Chapters 2 and 3 and the extent of MAPs' usefulness within Libyan companies, are examined.

This chapter is divided into two main sections: in the first section, the direct relationship between each individual variable and the extent of MAPs usefulness in terms of (i) costing practices, (ii) budgeting practices and (iii) performance measurement practices within Libyan companies are tested. The results of these tests are used to assess the first fourteen hypotheses which were formulated in Chapter Four (section 4.4). A simple regression analysis is employed to accomplish this objective. In addition, this section includes the joint effect of each set of variables which fall under one contingent factor, for instance, examination of the influence of the variables of external environment namely dynamism, heterogeneity and hostility simultaneously. This analysis provides the best explanation for the variation in the extent of MAPs' usefulness and also supports the results of the previous section. In this case multiple regression is used to fulfil this objective.

The second section presents the intervening role of MAPs in the relationship between contingent factors and organisational performance. This analysis examines the indirect effect of each individual variable on organisational performance through the extent of MAPs usefulness. In this section, a number of hypotheses are tested based on the results that were reported in section 6.3. This

means that, when a significant direct relationship between contingent variable and MAPs usefulness is found then the intervening role of MAPs will be examined.

6.2 Assessing the Regression Assumptions

As discussed in Chapter Four (section 4.13), three types of regression were used in this study (i.e. simple, multiple and simple mediation analysis). There are two assumptions that should be fulfilled before any regression analysis is performed: these are normality and absence of multicollinearity (Hair, Black, Babin, Anderson, & Tatham, 2005). However, the primary assumption which has to be met before conducting these assumptions is that the variables type should be either metric or categorical with two categories. As can be seen from Table 6.1, all the variables are metric, except ownership type and industry type which are categorical with two categories.

Table 6.1 Descriptive Statistics for Research Constructs

	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Skewness</i>	<i>Kurtosis</i>
Age	1.00	4.00	3.41	.973	-1.438	.727
Size	1.00	4.00	2.48	.926	.155	-.812
Ownership type	1.00	2.00	1.41	.493	.385	-1.882
Industry type	1.00	2.00	1.42	.496	.317	-1.931
Organisational performance	1.00	4.00	2.71	.804	-.451	-.733
Dynamism	1.00	5.00	2.70	.715	-.117	-.737
Heterogeneity	1.00	5.00	2.68	.803	-.021	-.431
Hostility	1.00	5.00	2.73	.964	.231	.461
Mission strategy	1.00	5.00	3.26	.795	-.241	.206
Competitive strategy	1.00	5.00	3.18	.861	-.147	-.322
Products & markets change strategy	1.00	5.00	3.26	1.081	-.387	-.682
Product complexity	1.00	4.00	2.85	.704	-.089	-.888
Customisation	1.00	5.00	2.28	1.026	-.071	-.994
Centralisation	1.00	5.00	3.53	.861	-.348	-.608
Formalisation	2.00	5.00	4.07	.703	-.622	-.212
Cost practices	1.00	17.00	6.07	3.804	.630	-.475
Budget practices	1.00	25.00	11.37	5.806	.290	-.638
Performance measure practices	1.00	18.00	4.04	3.122	.600	2.856

The normality distribution tests were done in two ways. The first is for dependent variables only; as indicated by Field (2006), a dependent variable must correspond

to a normal distribution. Two tests were performed to examine the normality of two dependent variables (i.e. MAPs and organisational performance): these are a histogram and a normal probability plot (P-P Plot). As shown in Figure 6.1, the bell-shaped curve of MAPs is slightly confining to the left. The normal probability plot in Figure 6.2 demonstrates that most points pursue the line except some of them fall a little away from the line. Figures 6.3 and 6.4 show that the organisational performance variable is normal distribution. The second way of checking normality is through checking all variables, either dependent or independent variables. Kurtosis and skewness values were used here. In this context, Hair, Anderson, Tatham, and Black (1998) point out that kurtosis values have to fall between -3 and 3 to be acceptable as normal distribution, and range between -1 and 1 for skewness. According to Table 6.1, kurtosis and skewness for all variables fall within an acceptable scope except that age of companies was outside the acceptable range of skewness, but inside the acceptable range of kurtosis. Therefore, it could be considered that all variables correspond.

Figure 6-1 The Histogram of the MAPs

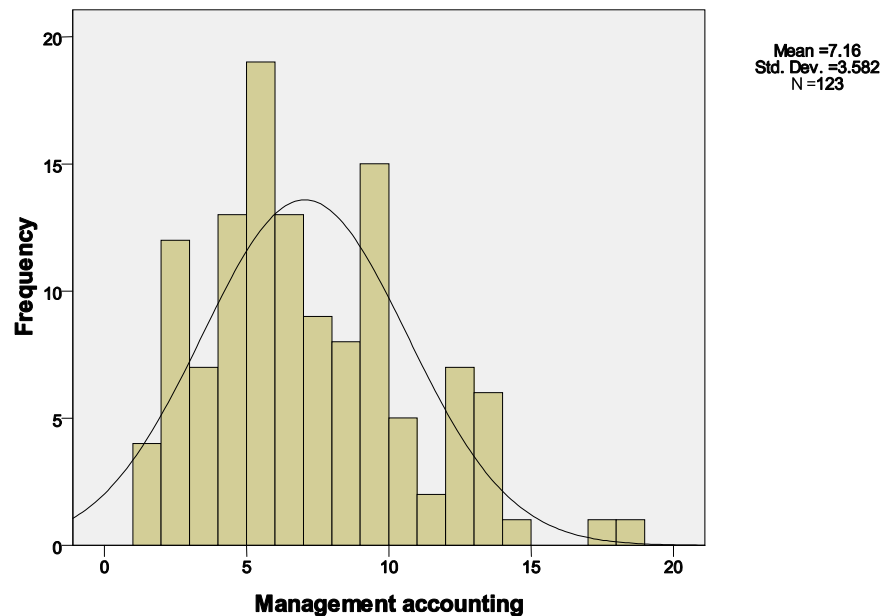


Figure 6-2 Normal Q-Q Plot Management Accounting
Normal Q-Q Plot of Management accounting

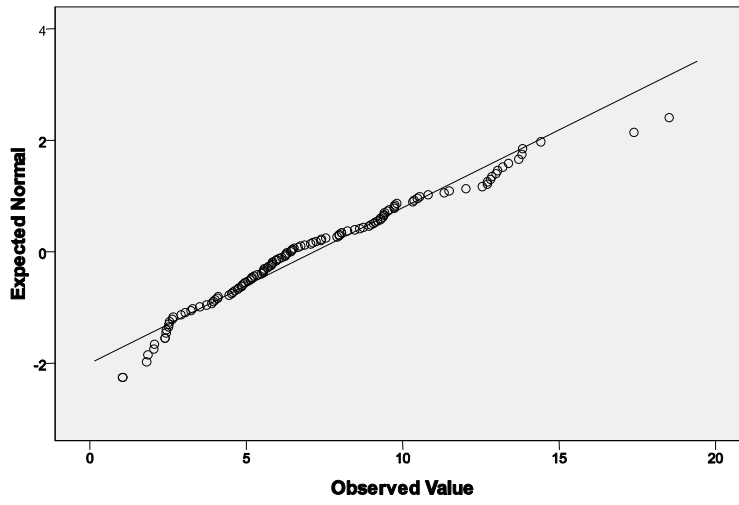


Figure 6-3 The Histogram of the Organisation performance

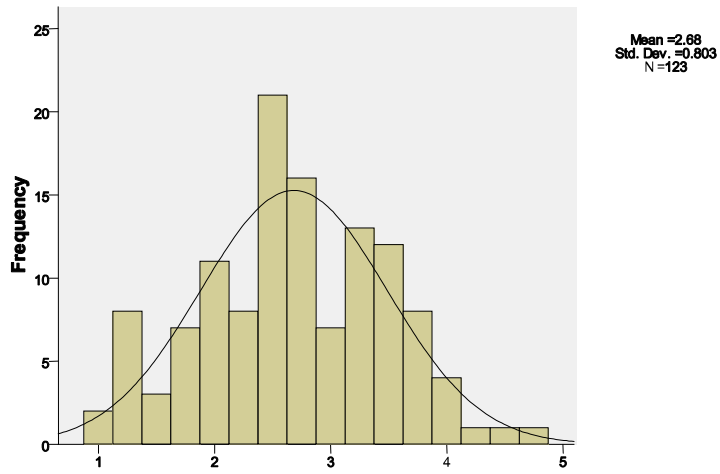
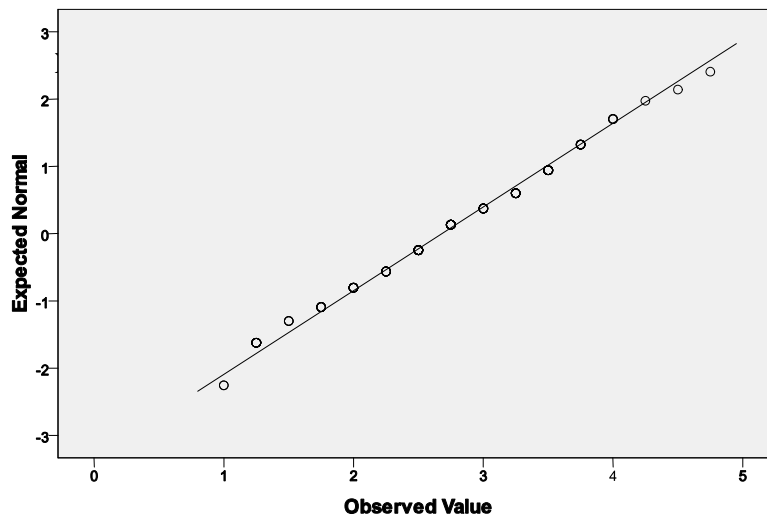


Figure 6-4 Normal P-Plot of the Organisation performance



The variables were also screened for multicollinearity. Two tests were conducted to check the multicollinearity problems that existed in the regression analysis. The statistical literature and most previous studies used a correlation matrix of all the independent variables in the regression model. According to many researchers, the coefficients of correlation among independent variables should be low to indicate that no multicollinearity problem exists. It has been suggested that a bivariate correlation between each of pair independent variables should be less than 0.8 (Cooper and Schindler (2008) (Hair et al., 1998; Tabachnick & Fidell, 2001). In this case here all the correlation coefficients were below this value, therefore, all variables will be retained (see Table 6.2).

Another method to detect the multicollinearity problems is to assess the value of the **Variance Inflation Factor (VIF)** and **Tolerance Statistic**, which are the common measures that are used to identify the degree of multicollinearity of the independent variable with the other independent variables in a regression model. The SPSS program performs a 'collinearity diagnostics' test which includes both Variance Inflation Factor and Tolerance Statistic as part of the multiple regression procedure (Firth, 1996; Laitinen, 2001). Many writers such as Field (2006) and Hair et al. (1998) suggest that **VIF** should be less than 10 to indicate that no multicollinearity problem exists among independent variables. Table 6.9 shows

that no multicollinearity problem is present in this study. In addition, it has been recommended that the acceptable value of Tolerance must not be under 0.1 (Field, 2006; Hair et al., 1998). As reported in Table 6.9 that value of tolerance statistics in this study did not fall below 0.1, hence the absence of multicollinearity was met.

Table 6.2 Correlation between the Independent Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Age	1													
2	Size	.24	1												
3	Industry	.10	.23	1											
4	Ownership	-.29	.14	-.13	1										
5	Dynamism	-.08	.10	.04	.19	1									
6	Heterogeneity	-.16	-.15	.01	.09	.64	1								
7	Hostility	-.01	-.24	-.01	-.20	.25	.55	1							
8	Strategy (1)	-.21	-.01	-.15	.11	.14	.29	.17	1						
9	Strategy (2)	-.12	-.07	-.23	.03	-.01	.11	-.01	.47	1					
10	Strategy (3)	-.21	.03	-.20	.10	.09	.20	.02	.59	.66	1				
11	Product complexity	.07	.07	-.16	-.18	.25	.25	.21	.33	.22	.28	1			
12	Customisation	-.11	.35	.01	.25	.10	.01	-.12	-.04	-.02	-.03	-.01	1		
13	Centralisation	-.09	.02	.27	.11	.13	.21	-.07	.16	.09	.15	.21	.18	1	
14	Formalisation	-.04	.06	.01	.26	-.03	.04	-.10	.16	.09	.24	.14	.14	.35	1

Strategy (1) = mission strategy, Strategy (2) = competitive strategy, Strategy (3) = products & markets change strategy

6.3 Hypotheses Testing Regarding Direct Effect of Contingent Factors on MAPs

In Chapter Five, contingent factors were classified into five categories, namely: external environment, business strategy, organisational structure, technology and characteristics of organisation, and each factor comprises many variables. Additionally, the MAPs were also divided into three classifications (i.e. cost, budgets and performance measures practices). The relation analyses were performed to examine each explanatory variable individually with MAPs. The next subsections present the testing and results of the research hypotheses that were introduced in Chapter Five. Moreover, the results are discussed and explained after each test.

6.3.1 External Environment Factor

With respect to the effect of external environment dimensions (dynamism, heterogeneity and hostility) on the extent of MAPs usefulness, it was hypothesised that there is a relationship between external environment and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

- *H1: The degree of dynamism of the external environment impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*
- *H2: The degree of heterogeneity of the external environment impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*
- *H3: The degree of hostility of the external environment impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*

The results related to these hypotheses as shown in Table 6.3 report that the standardised regression coefficient (β) of the impact of each external environment dimension on each aspect of MAPs (i.e. cost, budgets, performance measures practices and MAPs overall) is not significant, with the exception of the result related to the impact of the hostile environment on costing practices, which is significant with [$\beta = -0.204$, $R^2 = 0.042$ and $F = 5.239$]. Thus, there is no support for **H1** and **H2**, and limited support for **H3**, hence the impact of each external environment dimension on MAPs overall has no support.

Table 6.3 Effect of External Environment on MAPs

	<i>Dynamism</i>				<i>Heterogeneity</i>				<i>Hostility</i>			
	<i>R²</i>	<i>F</i>	<i>St.E</i>	<i>β</i>	<i>R²</i>	<i>F</i>	<i>St.E</i>	<i>β</i>	<i>R²</i>	<i>F</i>	<i>St.E</i>	<i>β</i>
<i>Cost practices</i>	.002	.249	.483	-.045	.002	.298	.430	-.050	.042	5.239	.333	-.204*
<i>Budget practices</i>	.018	2.215	.732	.134	.013	1.540	.653	.112	.020	2.425	.513	-.140
<i>Performance measure practices</i>	.000	.023	.397	-.014	.000	.013	.353	.010	.005	.653	.278	-.073
<i>MAPs</i>	.003	.333	.455	.052	.002	.256	0.405	.046	.029	3.563	0.315	-.169

* $p < .05$

It is devised that the external business environment of Libyan companies (i.e. dynamism, heterogeneity and hostility) has no influence on MAPs to be implemented in response to decision-makers' requirements for help in managing their tasks. These results are consistent with Soobaroyen and Poorundersing's (2008) study which was conducted in a developing country (Mauritius), based on characteristics of MA information as defined by Chenhall and Morris (1986). However, the current results are not consistent with the most previous relevant studies that were conducted on developed countries. Most of these findings indicate a positive association between an uncertain external environment and MAS which is conceptualised as: characteristic of MA information, namely scope, timeliness, aggregation and integration (Chenhall & Morris, 1986; Chong & Chong, 1997); financial and non-financial performance measures (Gordon & Narayanan, 1984; Govindarajan, 1984; Hoque et al., 2001); level of MA sophistication (Abdel-Kader and Luther (2008).

A possible explanation for this difference may be that all of these studies except Soobaroyen and Poorundersing (2008), which is consistent with the current study, were undertaken in developed countries where the MAS is more sophisticated and of wider diversity, giving an opportunity for companies to choose appropriately according to their needs, while in developing countries such as Libya the MAS is still emerging and traditional, so there are limited chances for MAPs usefulness even if there is a need for that. Moreover, as mentioned in Chapter One, although Libyan companies may have started to be subject to 'the discipline of the market', as a result of the fundamental changes in their external business environment, some still remain relatively protected. Therefore, managers in such Libyan companies do not act efficiently and use management accounting information for decision-making as their counterparts in developed countries. Thus, it may be argued that unless these companies become fully independent economic entities, management accounting is unlikely to play a major role in their management; as reported by Libby and Waterhouse (1996), organizations operating in more highly competitive environments tend to have a greater number of MAS in use.

In addition, the awareness and understanding of the requirements for a new environment and its challenges will require a period of time, and call for adoption of the necessary measures such as involving a large volume of management accounting information in the decision-making process which may need plenty of time, especially for MAPs, which are described as having some resistance to change. This assumes that the elements of MAPs change (such as financial resources and human competencies) are available for these companies. Based on this, it can be concluded that the impact of the external environment may not appear in the transitional economies (as demonstrated by this study's results), but its impact cannot be refuted in all situations and circumstances (as indicated in previous studies conducted in developed countries).

6.3.2 Business Strategy Factor

It was indicated in prior Chapters (Chapters 2 and 3) that business strategy is one of the contingent factors that may affect MAPs. Most previous studies have adopted either Porter's (1980) (competitive strategy) or Miles and Snow's (1978) typologies (the rate of change in products or markets strategy) (see Chapter 3 subsection 3.4.1), however the current study adopts three typologies, Porter (1980), Miles and Snow (1978) and Gupta and Govindarajan (1984) (mission strategy). The main assumption here is that there is a relationship between business strategy and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measure.

- *H4: The degree of strategic mission impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*
- *H5: The degree of strategic competitive advantage impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*
- *H6: The degree of strategy in the rate of change in products or markets impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*

Table 6.4 Effect of Business Strategy on MAPs

	<i>Mission strategy</i>				<i>Competitive advantage strategy</i>				<i>products and markets change strategy</i>			
	<i>R²</i>	<i>F</i>	<i>St.E</i>	<i>β</i>	<i>R²</i>	<i>F</i>	<i>St.E</i>	<i>β</i>	<i>R²</i>	<i>F</i>	<i>St.E</i>	<i>β</i>
<i>Cost practices</i>	.011	1.381	.433	.106	.001	.175	.406	.038	.001	.113	.320	.031
<i>Budget practices</i>	.070	9.113	.640	.265*	.085	11.18	.593	.291*	.047	5.927	.477	.216*
<i>Performance measure practices</i>	.126	17.272	.334	.355**	.064	8.251	.322	.253*	.035	4.450	.258	.188*
<i>MAPs overall</i>	.081	10.597	.393	.284*	.060	7.658	.371	.244*	.033	4.158	.296	.182*

* $p < .05$; ** $p < .001$.

Table 6.4 shows the statistics results related to these hypotheses, which refer to the fact that all types of strategy have a significant impact on budget practices, performance measurement practices and thus on MAPs overall. On the other hand, the interesting point is that the costing practices are not affected by any one of these strategies. However, it could be concluded that business strategy has an impact on MAPs, so the three hypotheses (i.e. **H4**, **H5** and **H6**) are accepted; hence, the impact of each business strategy typology on MAPs overall is supported.

These results confirm the logical tactical options available to build; differentiation and prospector strategies are greater than those available in the duplicate strategies (i.e. harvest, cost leadership and defender strategies). Thus, information processing requirements to deal with strategies will be greater in the case of the duplicate strategies. These results support the findings from the literature. For instance, Abernethy and Guthrie (1994) reported that the characteristics of the broad scope of information are more effective in organisations employing a prospector strategy than in organisations employing a defender strategy. King *et al.* (2010) emphasize that differentiation and low-cost strategy are important for predicting the adoption and extent of budget use. Perera and Poole (1997) initiated that there is a strong positive correlation between non-financial measures and a customer-focused manufacturing strategy. The work of Govindarajan and Gupta (1985) reported that non-financial measures such as new product development, market share, and customer satisfaction have been emphasised to a greater extent by companies following a ‘build’ strategy.

However, the literature includes inverse findings. Abdel-Kader and Luther (2008) found that the sophistication of MAPs was not associated with business strategy. Additionally, Bouwens and Abernethy (2000) pointed out that customization strategy does not affect directly the characteristics of MAS but rather operates via the interdependencies created when such a strategic priority is pursued.

On the other hand, Table 6.4 indicates that costing practices were not affected by any one of these strategies. According to the earlier descriptive results in Chapter 5, where the use of and meeting the needs of all costing practices are very low except for full and variable costing practices, a possible explanation for this result is that Libyan companies do not rely on a range of costing practices to provide and ensure the accuracy of costing information; instead, they utilise very traditional costing practices, full and variable costing, regardless of the adopted strategy. Therefore, it can be said that costing practices did not promote the level of diversity which can be explained by contingent factors.

6.3.3 Organization Structure Factor

Hypotheses **H7** and **H8** are related to organization structure, and suppose that there is relationship between organisation structure and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

- *H7: The degree of centralisation impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*
- *H8: The degree of formalisation impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*

The results from the simple regression test above (see Table 6.5) indicate that there is no impact of centralisation on all aspects of MAPs. While there is an impact of formalisation on cost, budget practices and MAPs overall [$R^2 = 0.047$, $\beta = 0.217$, $p < 0.05$; $R^2 = 0.121$, $\beta = 0.348$, $p < 0.001$; $R^2 = 0.079$, $\beta = 0.280$, $p < 0.05$ respectively], no impact was found of formalisation on performance measure practices. According to these results, it can be reported that the first hypothesis H7

regarding the effect of centralisation is rejected; at the same time, the second hypothesis H8 about the impact of formalisation is accepted.

Table 6.5 Effect of Organisational Structure on MAPs

	<i>Centralisation</i>				<i>Formalisation</i>			
	<i>R²</i>	<i>F</i>	<i>St.E</i>	<i>β</i>	<i>R²</i>	<i>F</i>	<i>St.E</i>	<i>β</i>
<i>Cost practices</i>	.002	.253	.401	.046	.047	5.991	.480	.217*
<i>Budget practices</i>	.008	.919	.611	.087	.121	16.619	.704	.348**
<i>Performance measure practices</i>	.021	2.605	.326	.145	.003	.360	.403	.054
<i>MAPs overall</i>	.011	1.355	.376	.105	.079	10.329	.445	.280*

* $p < .05$; ** $p < .001$.

Empirically, the results of this study and some previous studies (e.g. Gordon & Narayanan, 1984) did not find any significant evidence to support the association between centralisation and MAPs. Intellectually, there are at least two opposite schools of thought; the first one argues that centralised organisations use specialised instruments, techniques and personnel for planning processes (Hofer & Schendel, 1978) and MAPs are considered one of these techniques. In contrast, the second school believes that centralisation is associated with more political activity (Eisenhardt, 1989). From this perspective, centralisation imposes time limits to decision making, which consequently gives less emphasis to situation analysis (Miller, 1987), thus restricting the flow of information and the opportunity to use MAPs broadly. Consequently, decentralisation has a positive impact on the adoption of MAPs. This point of view is supported empirically by Soobaroyen and Poorundersing (2008) and Abdel-Kader and Luther (2008), who found that MAPs are significantly explained by decentralisation.

Moreover, centralisation implies that decisions are always taken by top management; hence, if the management is aware of the benefit of MAPs, it will deal with MA information more broadly, and thus support the adoption of a range of MAPs. Therefore, one possible explanation for lack of impact of centralisation/ decentralisation on MAPs in Libyan companies is that Libyan companies tend to be centralised, as the mean score of centralisation/decentralisation is relatively high at 3.53 (see Table 6.1); moreover, a common characteristic of most developing countries' companies is that top managements do not give sufficient

support to MAPs, because they are not convinced of the importance of the role of MAPs in facilitating decision-making, which may be an obstacle for adopting a range of MAPs.

With respect to the effect of formalisation on MAPs usefulness, the results in Table 6.5 also indicate that the structural dimension of formalisation has a significant positive effect on budgeting practices, costing practices and MAPs overall. This means that these companies seem to achieve coordination through a combination of bureaucratic structures that emphasise the standardisation of the work process and formalisation of behaviour using budgeting practices and costing practices (especially full, variable and standard costing practices), in order to reduce the negative effect of formalisation by increasing managers' flexibility to do what they deem appropriate to meet the specified goals. However, our review in Chapter 3 did not find any study based on contingency theory examining the direct effect of formalisation on MAPs.

6.3.4 Manufacturing Technology Factor

As mentioned earlier, the literature suggests that manufacturing technology such as product complexity refers to the level of complexity in the production process and levels of customisation that have a positive effect on MAS. It is supposed that greater product complexity or degree of customisation require the adoption of sophisticated and diverse MAPs. Thus, it is hypothesised that there is a relationship between technology and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement

- *H9: The degree of product complexity impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*
- *H10: The degree of customisation impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*

Table 6.6 Effect of Manufacturing Technology on MAPs

	Product complexity				Customisation			
	R ²	F	St.E	β	R ²	F	St.E	β
<i>Cost practices</i>	.012	1.531	.488	.112	.020	2.517	.333	.143
<i>Budget practices</i>	.047	5.97	.732	.217*	.018	2.252	.509	.135
<i>Performance measure practices</i>	.082	10.8	.386	.287*	.000	.002	.276	.004
<i>MAPs overall</i>	.058	7.308	.449	.240*	.016	1.909	.315	.125

* $p < .05$; ** $p < .001$.

From Table 6.6 the statistics results related to hypotheses **H9** and **H10** can be seen. It indicates that the values of the standardized regression coefficient β of product complexity showed a positive significant relationship between product complexity and budget practices usefulness, performance measure practices usefulness and usefulness of MAPs overall [$R^2 = 0.045$, $\beta = 0.217$, $p < 0.05$; $R^2 = 0.082$, $\beta = 0.287$, $p < 0.05$; $R^2 = 0.058$, $\beta = 0.240$, $p < 0.05$ respectively], but no significant results regarding the relationship between product complexity and cost practices usefulness. Also, as can be seen from the results, there are no significant results between customisation and any of aspect of MAPs' usefulness (i.e. cost practices, budgets practices and performance measure practices). Therefore, the hypothesis **H9** is accepted whereas the second one (**H10**) is rejected.

These significant results suggest that Libyan companies have various product lines, processes, volume proportions and various consumer products seem to place more importance on budget and performance measurement practices' usefulness, which provides better and more accurate MA information for those products, more communication channels and more rationalization of the spending resources they need. Thus, greater control and accurate accounting information is required, especially in highly competitive market places. This is consistent with some previous studies such as (Chenhall & Langfield-Smith, 1998b; Malmi, 1999), who found that manufacturing technology, namely product complexity, affects the potential usefulness of MAPs, combining traditional and contemporary MAPs. However, there is no absolute consensus about the relationship between manufacturing technology and MAPs. For example, Abdel-Kader and Luther (2008) did not support the effect of complexity of the production process on MA

sophistication. With regard to performance measurement practices, Baines and Langfield-Smith's (2003) results showed there were no direct associations linking organisation design, technology and advanced MAPs, and the technology does not impact independently on the reliance on non-financial management accounting information as well.

With respect to the costing practices, a possible reason for no relationship between costing practices' usefulness and product complexity in Libyan companies is that most Libyan companies place more attention on full and variable costing practices (see Chapter 5) rather than standard and other advanced costing practices, which are expected to be affected by product complexity. This justification is consistent with a previous study by Drury and Tayles (2005) which provides support for Bjørnenak's (1997) finding, that standardised products result in standardised activities, thus enabling cost standards to be set. Consequently, the standard costing system can be used, which may avoid using the actual costing system which requires constant monitoring of the costs. Additionally, Krumwiede (1998) found that complexity is positively associated with the decision to implement ABC, an indicative of a sophisticated MAS. While, Clarke et al. (1999) found in their study that implementing ABC was not significantly associated with manufacturing diversity.

Finally, findings of this study in terms of the impact of customisation on MAPs (i.e. cost practices, budgets practices and performance measure practices) are not consistent with Kaplan and Mackey's (1992) study, which found that organizations using a flow shop exhibited a significantly greater reliance on accounting numbers for evaluation purposes, as opposed to job shops, using the production cost information for managerial performance evaluation.

6.3.5 Characteristics of Organisation Factor

With respect to the effect of the characteristics of an organisation, namely organisation size, age of organisation, type of ownership and type of industry on the extent of MAPs' usefulness, it was hypothesised that there is a relationship

between the characteristics of the organisation and the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.

- *H11: Age of organisation impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*
- *H12: Organisation size impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*
- *H13: Kind of industry impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*
- *H14: Type of ownership impacts on the extent of MAPs usefulness in terms of (i) costing, (ii) budgeting and (iii) performance measurement.*

Table 6.7 Effect of Characteristics of Organisation on MAPs

	Age of company				Size of company				Main Industry				Company ownership			
	R ²	F	S.E	β	R ²	F	S.E	β	R ²	F	S.E	β	R ²	F	S.E	β
Cost practices	.029	3.643	.350	-.171	.021	2.543	.369	.143	.005	.596	.695	-.070	.085	11.24	.671	.292*
Budgets practices	.010	.232	.539	-.100	.038	4.773	.559	.195*	.011	1.378	1.058	-.106	.177	26.02	.971	.421**
Performance measure practices	.001	.138	.291	-.034	.053	6.716	.298	.229*	.005	.621	.571	.071	.025	3.165	.568	.160
MAPs overall	.016	.907	.332	-.125	.050	6.310	.343	.223*	.004	.457	.655	-.061	.142	20.03	.612	.377**

* $p < .05$; ** $p < .001$.

It clear from Table 6.7 that neither the age of the company nor the main industry have a direct effect on any aspect of MAPs usefulness, while the size of the company has a significant positive effect on budget practices usefulness, performance measure practices' usefulness and MAPs' overall usefulness with [$R^2 = 0.038$, $\beta = 0.195$, $p < 0.05$; $R^2 = 0.053$, $\beta = 0.229$, $p < 0.05$; $R^2 = 0.050$, $\beta = 0.223$, $p < 0.05$, respectively]. Otherwise, ownership of the company significantly affects cost practices usefulness, budget practices usefulness and MAPs overall usefulness [$R^2 = 0.085$, $\beta = 0.292$, $p < 0.05$; $R^2 = 0.177$, $\beta = 0.421$, $p < 0.001$; $R^2 = 0.142$, $\beta = 0.377$, $p < 0.001$, respectively]. Therefore, the hypotheses related to size of company and company ownership are accepted, whereas hypotheses related to age of company and the main industry are rejected.

As indicated in the previous review in Chapter 3 (see section 3.7), the studies based on contingency theory examining the impact of the characteristics of an

organisation were very limited, especially those concerned with age of company, type of ownership and type of industry. Dent and Ezzamel (1987) argue that the literature on the contingency theory of management accounting has largely neglected the impact of company age. Dent and Ezzamel (1987) similarly indicate that the implications of company age have been largely neglected within the literature on the contingency theory of management accounting. Therefore, a comparison of current results with previous relevant studies is very limited.

With respect to the effect of age of company, no evidence has been found in previous reviews that examines its impact on MAS; however, the result of this study is consistent with that of Firth (1996) in China, that age of company does not have an impact on MAS. A possible explanation for this may be, as Firth (1996, p. 650) states, “Perhaps the three year minimum age was sufficient for management accounting knowledge to be transferred and any longer period (up to eight years) did not yield any extra dissemination”.

For size of company, the positive significant effect of size on budgets, performance measurement and MAPs’ overall usefulness as shown in Table 6.7 can be explained by the suggestion that increased organisational size leads to an increased complexity of tasks; this will lead to wide differentiation, corresponding to increased difficulties of integration, and thus more sophisticated integrative information systems such as MAPs are required. These results are consistent with Abdel-Kader and Luther’s (2008) and King et al.’s (2010) findings, that size of company has a positive impact on MAS. In addition, the literature suggests that size is the main variable in predicting organizational control, as large organisations need more management and evaluation of their activities and performance than small ones, and this will include the accounting system in general and MAS in particular (Chenhall & Langfield-Smith, 1998a; Child, 1973; Upchurch, 2002).

Also, it is evident from Table 6.7 that type of industry (i.e. manufacturing or non-manufacturing) has no impact on MAPs’ usefulness whether for costing, budget or performance measure practices. Seemingly, this refers to the equal importance of the role of MA information in both manufacturing and non-manufacturing

companies. This is not in line with Drury's (2008, p. 653) statement that "Control systems have been shown to differ by industry type". For example, manufacturing companies have a large number of standard cost centres relying greatly on detailed variance analysis, while costs in non-manufacturing companies tend to be mainly of a discretionary nature.

Regarding type of ownership, the result of this study provides evidence supporting the importance of the ownership type to MAPs' usefulness, namely costing and budget practices, and how the difference in ownership type, which consequently reflects different management styles, would result in differences in the usefulness of costing and budget practices. The result of this study is consistent with Al-Omiri and Drury (2007), which indicates that higher levels of cost-system sophistication are positively associated with type of business sector. Scapens and Yan (1993) reported that one reason for key restrictions upon Chinese MAPs was government ownership of Chinese enterprises. Similarly, Drury (2008) inferred that government ownership was an impediment to the improvement and development of MAPs in Western companies. The possible reason for this is that organisations under government ownership focus on different objectives from those under private ownership. For example, the priority of private ownership is to maximise their profit and minimise their costs, while companies under government ownership may have other goals such as helping the society with their problems. This implies that private companies should be more interested in using MAPs in order to accomplish their targets.

6.3.6 Multiple Regression Analysis

Simple regression was used in a prior section to investigate the effect of each individual independent variable on the dependent variable. This section will extend the analysis by using a multivariate statistical technique – hierarchical multiple regression – to examine the association between a single dependent variable (i.e. MAPs) and a number of independent variables (i.e. set dimensions of each contingent factor) (Hair et al., 1998). In other words, the effect of each set variable of each factor on a dependent variable will be investigated simultaneously. Thus, this analysis will include five models (see Table 6.8). Each

contingent factor represents one model and the dimensions (variables) of these factors represent independent variables. It has been argued that a set of contingency factors taken jointly is likely to be more powerful in explaining variations in MAPs' usefulness than a single contingent variable (Ezzamel & Hart, 1987). Hence, the purpose of conducting this technique is to answer the following questions: what is the collective impact of these contingent variables on MAPs' usefulness? What are the variables which best explain variation in the extent of MAPs' usefulness? And also to confirm the results reported in the previous section. Therefore, multiple regression technique shows a balanced result on the joint contributions obtained from the explanatory variables and supports understanding of the variability in the value of the dependent variable.

In the first model, Table 6.9 shows that the value of the F-ratio, which indicates whether the regression model (as a whole) predicts the dependent variable significantly or not, is not significant at the 0.05 level ($\text{sig} > 0.05$). This implies that the model has not significantly had the ability to predict the dependent variable; in other words, the change in the MAPs' usefulness is not associated with a unit change in the dimensions of the external environment. Thus, the model is not reliable for examining the variation in the extent of usefulness of MAPs in Libyan companies. This result confirms the previous results in section 6.3 that the dimensions of the external environment have no impact on MAPs' usefulness, thus these dimensions also have no impact on MAPs' usefulness, neither a single impact nor a collective impact.

In the second model, Table 6.9 indicates that the model is significant at the level of 0.05 ($F = 4.42$), which reflects its reliability in examining the extent of the effect of the business strategy variable on MAPs' usefulness. The table indicates also that the business strategy factor accounts for 9.7% of the extent of MAPs' usefulness among Libyan companies, which is explained only by the mission strategy variable [$\beta = 0.238$, $p < 0.05$]. This variable is the only explanatory business strategy factor that has a significant relationship with the extent of MAPs' usefulness. In addition, Table 6.9 presents the multicollinearity statistics, VIF values and tolerance statistics. The results suggest the multicollinearity

problem does not exist among the independent variables in this model. As was seen in the earlier section, all kinds of business strategy have an effect on budget practices, performance measurement practices and MAPs overall, as a single effect, while Table 6.9 shows that only mission strategy has an effect as a joint impact.

Table 6.8 Multiple Regressions for Independent Variables Influencing MAPs

<i>External environment variables</i>						
	<i>variables</i>	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>Tolerance</i>	<i>VIF</i>
<i>Model one</i>	<i>Dynamism</i>	-.060	.594	-.012	.564	1.774
	<i>Heterogeneity</i>	.930	.613	.209	.419	2.385
	<i>Hostility</i>	-.989	.381	-.281*	.677	1.476
	<i>R² (F)</i>	.056 (2.375)				
<i>Business strategy variables</i>						
	<i>variables</i>	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>Tolerance</i>	<i>VIF</i>
<i>Model two</i>	<i>Mission strategy</i>	1.071	.496	.238*	.626	1.597
	<i>Competitive strategy</i>	.681	.474	.162	.598	1.673
	<i>Products and markets change</i>	.190	.402	.057	.515	1.942
	<i>R² (F)</i>	.097 (4.242)*				
<i>Organisational structure variables</i>						
	<i>variables</i>	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>Tolerance</i>	<i>VIF</i>
<i>Model three</i>	<i>Centralisation</i>	.028	.390	.007	.875	1.143
	<i>Formalisation</i>	1.417	.478	.278*	.875	1.143
	<i>R² (F)</i>	.079 (5.124)*				
<i>Technology variables</i>						
	<i>variables</i>	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>Tolerance</i>	<i>VIF</i>
<i>Model four</i>	<i>Product complexity</i>	1.230	.447	.242	1.000	1.000
	<i>Customisation</i>	.446	.307	.128	1.000	1.000
	<i>R² (F)</i>	.074 (4.791)*				
<i>Characteristic of organisation variables</i>						
	<i>variables</i>	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>Tolerance</i>	<i>VIF</i>
<i>Model five</i>	<i>Age</i>	-.273	.336	-.074	.833	1.201
	<i>Size</i>	.805	.353	.208*	.838	1.194
	<i>Industry type</i>	-.423	.630	-.059	.915	1.093
	<i>Ownership type</i>	2.301	.662	.317*	.838	1.193
	<i>R² (F)</i>	.179 (6.415)**				

* $p < .05$; ** $p < .001$

The third model, as can be seen from Table 6.9, is similar to the second model as it is significant at the level of 0.05 ($F = 5.124$). The table illustrates the

explanatory power (adjusted R^2) of organisational structure which was used in explaining the extent of MAPs' usefulness, as the independent factor is 7.9%. Also, one explanatory variable, namely formalisation [$\beta = 0.278$, $p < 0.05$], was found to contribute significantly in the model. This result supports the earlier finding in subsection 6.3.3. The multicollinearity statistics, both the VIF values and tolerance statistics presented in Table 6.9 provide evidence that the problem of multicollinearity does not exist among the independent variables in this model.

Model 4 of the regression analysis presents manufacturing technology factors as independent factors. The F-ratio of 4.791 is a significant indication that the whole model is a significant model. The adjusted R^2 of 0.074 indicates the explanatory power of this model in explaining the extent of MAPs' usefulness. The only explanatory variable that shows a significant relationship with the dependent variable is product complexity [$\beta = 0.242$, $p < 0.05$]. This result is consistent with the earlier finding in subsection 6.3.4. Furthermore, Table 6.9 demonstrates that no multicollinearity problem exists among the independent variables in this model.

The final model (model 5) is significant at the level of 0.001 with F-ratio of 6.415 and the adjusted R^2 of 0.179, which indicates that the characteristic of organisation factor accounts for about 18% of the extent of MAPs' usefulness among Libyan companies. The results shown in Table 6.9 reveal that there are two explanatory variables identified by the model as significantly associated with the extent of MAPs usefulness in Libyan companies at the 5% significance level. These variables are company size [$\beta = 0.208$] and type of ownership [$\beta = 0.317$]. This result supports the earlier finding in subsection 6.3.5. Finally, the VIF values and tolerance statistics illustrate that no multicollinearity problem exists among the independent variables in this regression model.

6.4 Intervening Role of MAPs between Contingent Variables and Organisational Performance

Having examined the outcomes of the testing of the data and the hypotheses in the previous section, this section provides further interesting relationships between the variables that have been examined. This section is, therefore, an attempt to

investigate the intervening role of MAPs on the linkages between the contingent variables that have a significant effect on MAPs' organisational performance. Thus far, it has been suggested that contingent variables such as external environment and business strategy may induce managers to use MA information for decision-making. This implies that the impact of MAPs acts as an intervening construct between the contingent variables and organisational performance. In addition, it can be assumed that the relationship between these variables and organisational performance may be due partly to direct effects, or partly to indirect effects via the extent of MAPs usefulness, or both. Thus, this section will also provide further insights into the relationships between the variables within the comparison between direct and indirect relationships among contingent variables and organisational performance through the extent of MAPs usefulness.

Particularly, this section is interested in assessing whether the relation between contingent factors and organisational performance is operating via MAPs, where only a direct relationship between contingent factors and MAPs was found in the previous section. However, before conducting these analyses, it needs to be confirmed that the direct effect of MAPs on organisational performance exists as an assumption for carrying out the analyses of the indirect relationship.

Table 6.9 Effect of MAPs on Organisational Performance

	<i>R</i> ²	<i>F</i>	<i>St.E</i>	β
<i>Cost Practices</i>	.096	12.905	.018	.310**
<i>Budget Practices</i>	.104	14.069	.012	.323**
<i>Performance measure practices</i>	.111	15.094	.022	.333**
<i>Over all MAPs</i>	.145	20.545	.019	.381**

***p* < .001.

The results from Table 6.10 of simple regression indicate that the impacts of all types of MAPs on organisational performance are highly significant [$R^2 = 0.096$, $\beta = 0.310$, $p < .001$ for cost practices; $R^2 = 0.104$, $\beta = 0.323$, $p < 0.001$ for budgets practices; $R^2 = 0.111$, $\beta = 0.333$, $p < 0.001$ for performance measure practices]. This implies two things: firstly, it reveals that Libyan companies receive high benefits from MAPs to encourage their performance; secondly, which is more

important, the assumption of the analyses of the indirect relationships between contingent factors and organisational performance through MAPs is attained. The next subsection presents the testing of these relationships.

6.4.1 External Environment Variables

Regarding the direct effect of external environment dimensions (dynamism, heterogeneity and hostility) on the extent of MAPs usefulness, it was found that only a hostile environment has an impact on costing practices usefulness. Hence, the following hypothesis can be postulated:

- **H15: The degree of hostility of the external environment impacts on organisational performance through the extent of costing practice usefulness.**

The results related to this hypothesis (**H15**) as shown in Table 6.10 reported that the coefficient value (β) of the impact of hostility on performance measurement via cost practices usefulness is not significant. Thus, this hypothesis is not accepted. A possible explanation for this result is that, logically, managers who run organisations facing high competition need to consider more effective ways (e.g. costing information) of achieving competitive advantage. This refers to the existence of a positive relationship between levels of competition (hostility) and levels of MAPs (e.g. costing practices) usage in organisations that can keep up with competition. However, Libyan companies have observed the opposite; the earlier result as shown in Table 6.3 refers to the fact that Libyan companies facing hostility in their environment were less used to costing practices which is possibly due to these companies losing their financial capacity to adopt diversity usage of costing practices as a result of intensive competition.

Table 6.10 Indirect/ Direct Effect of Hostility on Organisational Performance via MAPs

Independent variable	Indirect effect via MAPs (mediator variable)			Direct effect			
	Cost practices			R ²	F	St.E	β
	β	S.E	Z				
Hostility	-.040	.023	-1.744	.133	18.59	.067	-.365**

**p < .001, The dependent variable is organisational performance

Thus, it could be concluded that cost practices usefulness does not play a mediation role in the relationship between the hostility variable and organisational performance in Libyan companies. According to statistical language, the hostility variable lost its indirect effect because it has a negative direct effect on cost practices, whereas cost practices have a positive effect on organisational performance (see Table 6.10). Moreover, it can be seen from Table 6.11 that hostile environment has a statistically significant negative direct effect on organisational performance in Libyan companies [$R^2 = 0.133$, $\beta = 0.365$, $p < 0.001$]. This may imply that Libyan companies are not ready and able to face intensive competition to get competitive advantage.

Returning to the literature, no published evidence for the intervening effect of cost practices usefulness has been found in the literature; the current result is consistent with Soobaroyen and Poorundersing's (2008) study which examined the indirect effect of PEU on managerial performance through the extent of use of broad-scope MAS information; while, Chong and Chong (1997) found that there was significant indirect impact of PEU on SBU performance via the extent to which managers use broad-scope MAS information. They concluded that PEU was an important antecedent of MAS design, and that broad-scope MAS information was an important antecedent of SBU performance.

6.4.2 Business Strategy Variable

It was indicated in a prior section that each business strategy type (i.e. build/harvest, differentiation/cost leadership and prospectors/defenders) has a direct effect on both budget and performance measure practices usefulness. This thus leads to the following hypotheses:

- *H16: The degree of strategy mission impacts on organisational performance through the extent of MAPs usefulness in terms of (i) budgeting and (ii) performance measurement.*
- *H17: The degree of strategy competitive advantage impacts on organisational performance through the extent of MAPs usefulness in terms of (i) budgeting and (iii) performance measurement.*

- **H18: The degree of strategy products and markets change impacts on organisational performance through the extent of MAPs usefulness in terms of (i) budgeting and (ii) performance measurement.**

It is clear from Table 6.11 that mission and competitive strategies have a significant indirect effect on organisational performance via budgeting practices, performance measure practices and MAPs overall, whereas the prospector strategy has an indirect effect only through the extent of use of budgeting practices. Therefore, the hypotheses **H16** and **H17** are supported and accepted, while hypothesis **H18** is partially accepted for budgeting practices only.

Table 6.11 Indirect/ Direct Effect of Business Strategy on Organisational Performance via MAPs

Independent variable	Indirect effect via MAPs (mediator variable)									Direct effect			
	Budgets practices			Performance measure practices			MAPs overall			R ²	F	St. E	β
	β	S.E	Z	β	S.E	Z	β	S.E	Z				
Mission strategy	.086*	.038	2.254	.123*	.045	2.734	.110*	.043	2.568	.009	1.13	.091	.096
Competitive strategy	.086*	.037	2.362	.077*	.035	2.204	.086*	.0377	2.284	.014	1.77	.085	.120
Products & markets change strategy	.052*	.026	1.98	.047	.026	1.80	.0517	.0285	1.816	.004	.511	.067	.65

*p < .05, The dependent variable is organisational performance

This implies that build and differentiation strategies are effective through the extent of use of budgeting and performance measure practices and prospector strategy is only effective according to the extent of use of budgeting practices. Particularly, as indicated in Table 6.12 the direct effect of each business strategy type on organisational performance is not significant. It denotes that these strategies do not directly affect organisational performance; however, they have an effect through the extent of use of budgeting and performance measure practices for build and differentiation strategies, and through the use of budgeting practices for prospector strategy. This confirms the importance of the intervening role of MAPs, namely budgeting and performance measure practices, to enhance the organisational performance within business strategies. In other words, build and differentiation strategies may not be successful unless supported by budgeting

and performance measure practices, while prospector strategy is supported by budgeting practices.

The results are consistent with Chong and Chong (1997) who indicated that the direct impact of strategy on performance was non-significant, while the indirect effects (through MAS) were significant. Therefore, they revealed that “*strategy is an important antecedent of MAS design, and that broad scope MAS information is an important antecedent of SBU performance*” (p. 268). Hoque’s (2004) results show a significant and positive indirect relationship between strategic choice and performance via high use of non-financial measures for performance evaluation.

6.4.3 Organization Structure Factor

The results of hypothesis **H3** in a previous section indicated that formalization has a significant direct relationship with costing and budgeting practices. Hence, the following hypothesis is formulated:

- **H19: Formalisation has an impact on organisational performance through the extent of MAPs usefulness in terms of (i) costing and (ii) budgeting.**

Table 6.12 Indirect/ Direct Effect of Formalization on Organisational Performance via MAPs

Independent variable	Indirect effect via MAPs (mediator variable)									Direct effect			
	Cost practices			Budgets practices			MAPs overall			R ²	F	St.E	β
	β	S.E	Z	β	S.E	Z	β	S.E	Z				
Formalisation	.078	.040	1.967	.137*	.050	2.715	.127*	.0493	2.576	.003	.392	.104	.057

* $p < .05$, The dependent variable is organisational performance

As shown in Table 6.12 the statistical results related to hypothesis **H19** demonstrate that the indirect effect of formalisation on organisational performance via budgeting practices and MAPs overall is significant, which means that clearly specified work rules and a well-defined strict purpose are effective through the extent of budgeting practices’ usefulness. Consequently, hypothesis H19 is partly supported and accepted.

It should be noted from Table 6.13 that the direct impact of formalisation on organisational performance is not significant. This result implies that organisational performance is not affected directly by formalisation but it is affected by the intervening role of the extent of budgeting practices usefulness. Although no opposition to or support for this result has been found in the relevant literature, this study provides evidence to suggest that formalisation is an influence on the successful adoption and implementation of budgeting practices' usefulness, and thus organisational performance. This means that budgeting practices help Libyan companies to reduce the negative effect of formalisation by increasing managers' flexibility to do what they deem appropriate to meet the specified goals and thus increase the organisational performance.

6.4.4 Technology Factor

The management accounting literature suggests that production practices and process have an impact on the accounting information system design (Otley, 1987), and are considered as one of the contingent factors. Merchant (1984) pointed to a positive association between the degree of automation in the production process and the formality of the budgeting systems used. In addition, the previous section found that product complexity has a significant effect on the extent of MAPs' usefulness in terms of budgeting and performance measurement practices. Based on this result the following hypothesis is formulated:

- *H20: Product complexity impacts on organisational performance through the extent of MAPs usefulness in terms of (i) budgeting and (ii) performance measurement.*

Table 6.13 Indirect/ Direct Effect of Product complexity on Organisational Performance via MAPs

Independent variable	Indirect effect via MAPs (mediator variable)									Direct effect			
	Budgets practices			Performance measure practices			MAPs overall			R ²	F	S.E	β
	β	S.E	Z	β	S.E	Z	β	S.E	Z				
Product complexity	.080*	.040	1.976	.111*	.046	2.434	.105*	.046	2.276	.006	.703	.103	.076

**p* < .05, The dependent variable is organisational performance

Table 6.13 illustrates that the coefficient value (β) of impact product complexity on organisational performance using budgeting practices, performance measurement and MAPs overall is significant. Thus, hypothesis **H20** is supported and accepted. This implies that the extent of use of budgeting and performance measure practices plays a role in making product complexity which reflects the level of manufacturing complexity as a contribution to organisational performance. On the other hand, the Table 6.14 indicates that there is no direct association linking product complexity and organisational performance. This means that product complexity does not impact independently on organisational performance; rather it works according to the extent of use of budgeting and performance measure practices' influence on it. Therefore, the results of this study provide evidence on the role of budgeting and performance measure practices on the relationship between product complexity and organisational performance. This result suggests that product complexity is an important antecedent of MAPs, especially budgeting and performance measure practices. Support was also found for budgeting and performance measure practices being important antecedents of organisational performance.

As mentioned earlier, the empirical studies concerned with the relationship between technology and MAPs based on contingency theory are very limited, especially those examining MAPs as a mediator variable. Thus, no empirical evidence could be found to compare with the results. On the other hand, Baines and Langfield-Smith (2003) indicated that technology does not impact independently either on reliance on non-financial management accounting information, or on organizational performance; rather, it employs other organizational factors to influence them.

6.4.5 Characteristics of Organisation Factor

With respect to the indirect effect of characteristics of the organisation, only two variables, organisation size and type of ownership, were found to have direct effect on MAPs. The organisation size significantly affects the extent of budgets and performance measurement practices usefulness, while the type of ownership

has an impact on the extent of cost and budgeting practices usefulness. Thus, hypotheses H21 and H22 are postulated as follows:

- **H21: Organisation size has an impact on organisational performance through MAPs usefulness in terms of (i) budgeting and (ii) performance measurement.**
- **H22: Kind of ownership has an impact on organisational performance through the extent of MAPs usefulness in terms of (i) costing and (ii) budgeting.**

The interesting result which appears in Table 6.15 is that the size of Libyan companies, which has a significant direct impact on MAPs, namely budgeting practices, performance measure practices, MAPs overall and organisational performance (see Table 6.7 and 6.9), did not have an indirect effect on organisational performance by using budgeting practices and performance measure practices, but had an effect through MAPs overall. It suggests that neither the extent of budgets nor performance measurement practices usefulness play an intervening role in the relationship between organisation size and organisational performance alone, but rather they act together in a mediation role. This leads to rejection of **H21**. In other words, although organisation size has a significant direct influence on MAPs' usefulness on budgets and performance measure practices, as well as organisational performance, it does not, however, have an indirect effect on organisational performance through the usage of budgets and performance measure practices, so the mediation function of MAPs is absent from this relationship.

Table 6.14 Indirect/ Direct Affect of Organisational Characteristic on Organisational Performance via MAPs

Independent variable	Indirect effect via MAPs (mediator variable)									Direct effect			
	Budgets practices			Performance practices			MAPs overall			R ²	F	S.E	β
	β	S.E	Z	β	S.E	Z	β	S.E	Z				
Size	.043	.025	1.726	.050	.026	1.921	.059*	.028	2.043	.165	23.88	.072	.41**
	Cost practices			Budgets practices			MAPs overall			R ²	F	S.E	β
	β	S.E	Z	β	S.E	Z	β	S.E	Z				
Kind of ownership	.106*	.053	1.992	.142*	.070	2.025	.174*	.0678	2.578	.132	18.38	.138	.36**

*p < .05; **p < .001, The dependent variable is organisational performance

In contrast, the kind of ownership has a significant direct effect on both the usage of cost and budgeting practices and organisational performance, and an indirect effect on organisational performance through the extent of usage of cost, budgeting practices and MAPs overall as well. Hence, hypothesis **H22** is accepted. Therefore, it can be revealed that although the kind of ownership directly affects organisational performance, this influence is enhanced by using MAPs (i.e. cost and budgeting practices). In conclusion, MAPs' usefulness in terms of cost and budgeting practices has a significant intervening impact on the relationship between kind of ownership and organisational performance.

According to the literature review in Chapter Three, the management accounting studies based on contingency theory show a limited number of studies that examine the effect of organisation characteristics on MAS, especially any that examine the effect of kind of ownership. Additionally, the majority of these studies focused on the direct relationship congruency approach (Libby & Waterhouse, 1996) Hoque *et al.*, (2001) Abdel-Kader and Luther, (2008) Al-Omiri and Drury, (2007).

6.5 Further Discussion and Conclusion

This chapter has reported the results of two kinds of relationship: direct effects between contingent variables and MAPs which were measured using three types of practices, namely, cost, budgeting and performance measures; and indirect effects between contingent variables and organisational performance through MAPs.

Firstly, the direct effect, as indicated in Table 6.15 shows that there are six variables that do not have a significant effect on any type of MAPs: two from the external environment factor – dynamic and heterogeneous variables, one from the organisational structure factor – centralisation, one from technology – customisation, and two from characteristics of organisation – age of company and industry type. The majority of these results are not consistent with the theoretical suggestions of the reported literature in general, nor with some of the empirical studies in particular (e.g. Abdel-Kader & Luther, 2008; Chenhall & Morris, 1986;

Chong & Chong, 1997; Gordon & Narayanan, 1984; Hoque et al., 2001; Libby & Waterhouse, 1996; Soobaroyen & Poorundersing, 2008). However, some empirical studies reported results that were consistent with these results (e.g. Abdel-Kader & Luther, 2008; Al-Omiri & Drury, 2007; Chong & Chong, 1997; King et al., 2010; Perera & Poole, 1997; Soobaroyen & Poorundersing, 2008). On the other hand, although there is no single variable that has a significant effect on the three types of MAPs, there are seven variables – build strategy, differentiation strategy, prospector strategy, formalisation, product complexity, size and ownership type – which have an effect on two types of MAPs – budgeting and performance measure practices, except for formalisation and ownership type which have an effect on cost and budgeting practices.

Table 6.15 Hypotheses Results Summary of Direct and Indirect Effect among Contingent Factors, MAPs and Organisational performance

<i>Variables</i>	<i>Direct effect on MAPs</i>				<i>Indirect effect via MAPs</i>			
	<i>H</i>	<i>C</i>	<i>B</i>	<i>P</i>	<i>H</i>	<i>C</i>	<i>B</i>	<i>P</i>
Dynamism	H1	X	X	X	-	-	-	-
Heterogeneity	H2	X	X	X	-	-	-	-
Hostility	H3	√	X	X	H15	X	-	-
Mission strategy	H4	X	√	√	H16	-	√	√
Competitive strategy	H5	X	√	√	H17	-	√	√
Products & markets change strategy	H6	X	√	√	H18	-	√	X
Centralisation	H7	X	X	X	-	-	-	-
Formalisation	H8	√	√	X	H19	√	√	
Product complexity	H9	X	√	√	H20	-	√	√
Customisation	H10	X	X	X	-	-	-	-
Age	H11	X	X	X	-	-	-	-
Size	H12	X	√	√	H21	-	X	X
Industry type	H13	X	X	X	-	-	-	-
Ownership type	H14	√	√	X	H22	√	√	-

H: Hypothesis; **C:** Cost practices; **B:** Budgets practices; **P:** Performance practices; **√:** The hypothesis is accepted; **X:** The hypothesis is not accepted.

Surprisingly, cost practice was less influenced by the contingent variables than budgeting and performance measure practices, as it is significantly influenced only by hostility, formalisation and ownership type, while budgeting practices is more affected by the contingent variables as it is influenced by the seven variables mentioned above. This implies that the results of this study indicate that the number of explanatory variables of the extent of budgeting practices usefulness is

greater than that for cost and performance measure practices, whereas the number of explanatory variables of the extent of cost practices usefulness is very low.

- The results are consistent with some previous empirical studies and inconsistent with others; for example, the result related to hostility is consistent with Soobaroyen and Poorundersing (2008) and inconsistent with Chong and Chong (1997).
- The results are not consistent with previous empirical studies; for example, the effect of prospector strategy on performance measure practices is inconsistent with Hoque (2004).
- New results: the study adds to our understanding of some relationships among the contingent variables, MAPs and organisational performance, such as the effect of formalisation, product complexity, size and ownership type on organisational performance via MAPs, because, as mentioned earlier, the relevant literature has not provided any empirical evidence about such relationships; thus, this study has the potential to contribute theoretically to the literature.

The next chapter presents the results of the survey and semi-structured interviews with some participants from a sample of Libyan companies, to investigate the participants' perceptions of the relationship between contingent factors and MAPs. Moreover, interviews could provide further information and explanations about relationship contingent factors and MAPs usage, to help clarify and confirm the information collected using the questionnaire survey.

Chapter Seven

The Respondents' Perceptions of the Impact of Contingent Factors on Management Accounting Practices

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7.1 Introduction

This chapter discusses and provides the respondents' perceptions of the possible impact of the contingent factors on MAPs. This chapter achieves two main purposes, firstly to investigate the participants' perceptions of the relationship between contingent factors and the MAPs (i.e. the fifth objective of the research); and secondly, to gain further information and explanations the relationships between contingent factors and the MAPs (the third objectives). Chapter 6 investigated the statistical relationship between the actual use of MAPs, as seen by the participants and truth and reality of contingent factors also as seen by the participants, whereas this chapter aims to assess and test the views of participants about these relationships theoretical and the extent of its presence in their companies and how and why as well.

The rest of this chapter consists of four sections. Section 7.2 gives highlights on the results of the survey conducted on the participants' perceptions of the influence of contingent factors upon MAPs. Section 7.3 presents the interviews' findings which studied the extent of interviewees' awareness towards the relationship between various contingent factors and the MAPs in general and particularly the extent these relationships present in their companies. Finally, Section 7.4 gives a brief summary with a set of conclusions drawn on this chapter.

7.2 Analysis of Relevant Survey Data

The respondents were asked in the questionnaire to indicate their views regarding the impact of selected contingent factors which are external environment, business strategy, organisational structure, technology production and characteristics of organisation on MAPs based on cost, budgets and performance measure practices. The following subsections highlight their views regarding these issues.

7.2.1 The Influence of External Environment

This study as mentioned in chapter 4 adopts three dimensions of the external environment namely dynamism, heterogeneity and hostility, which are likely to have substantial impacts on MAPs. The six items listed in the questionnaire,

which exemplify and explain the three abovementioned dimensions of external environment, are as follows: the first item is for dynamic; the second, the third, the fourth and fifth items are for heterogenic; and last one is for hostility.

Table 7.1 sums up the respondents' perceptions of each item of the external environment on each attribute of the MAPs, which are cost practices, budget practices and performance measure practices. A five point Likert scale is used for this purpose from 'No influence' to 'Considerable influence'. Respondents believe that all the dimensions of external environment have an impact on each MAP, because their means values were over 3. However, they believe that these dimensions have more effect on cost practices than budgets and performance measure practices, which last one is less affected.

Based on the empirical studies review (Chapter 3), there is no clear evidence to support or oppose such results. Referred to (Chapter 5 Section 5.5), it can be seen that the used rates of budgeting and costing practices by Libyan respondent companies are wider than performance measure practices. It means that these companies seem to be familiar with budgeting and cost practices than performance measure practices. In addition the volume of change in the cost and budget systems is higher than the volume of change in the performance measurement system. This may have made the participants believe that the dimension of the external environment has more effect on cost and budget practices than performance measure practices.

Table 7.1 The Influence of External Environment

<i>Kind of external environment</i>	<i>Mean scores</i>		
	<i>Cost practices</i>	<i>Budges practices</i>	<i>Performance measure practices</i>
Turbulent external environment	3.70	3.54	3.26
Variation of product-market and orientation	3.59	3.41	3.43
Variation of consumer characteristic	3.27	3.02	3.11
Variation of production technologies	3.70	3.28	3.20
Variation of materials markets	3.5	3.40	3.03
The threat from hostile competition	3.33	3.18	3.09

7.2.2 The Influence of Business Strategy

Business strategy refers to how an organisation competes in its market to achieve a competitive advantage relative to their leading competitors (Porter, 1980). The three pairs of concepts for the three typology of business strategy have been presented in section H1 of the questionnaire to investigate the participants' perception of the impact of business strategy on the three attributes of MAPs. The respondents were asked to express their views of the influence of each type of strategy on each MAP (cost, budgets and measurement performance). A five point Likert scale was used in this section from 'No influence' to 'Considerable influence'.

Table 7.2 shows that participants see that all kinds of business strategy have significant impacts on the three types of MAPs, except the differentiation business strategy which the responses reveal as not having a significant impact on cost practices as its mean is under 3 (2.95). However, the levels of these impacts are different according to the types of strategy and MAPs. For example, they presume that build, prospector and differentiation strategies have more influence on performance measure practices than budgets and cost practices which last one is less influenced, while low cost and harvest strategy affect cost and budget practices (3.83 and 3,72 for low cost and 3.52 and 3.5 for harvest) more on performance measure practices (3.33 for low cost and 3.14 harvest), This result is consistent with Govindarajan and Gupta (1985) who found that a build strategy depends more on non-financial performance measures such as new product development and market share. Whereas, the defender strategy is perceived to have more impact on cost practices (3.56), than budgets and performance measure practices (3.2 and 3.19). The results are somewhat consistent with Miles and Snow's (1978) argument who argued that defender organisations adopt high levels of controls on cost than prospector organisations which focus on performance measures.

Table 7.2 The Influence of Business Strategy

<i>Kind of Business strategy</i>	<i>Mean scores</i>		
	<i>Cost practices</i>	<i>Budget practices</i>	<i>Performance measure practices</i>
Differentiation strategy	2.95	3.15	3.67
Cost leader- ship strategy	3.83	3.72	3.33
Harvest strategy	3.52	3.5	3.14
Build strategy	3.16	3.31	3.67
prospector strategy	3.28	3.38	3.77
Defender strategy	3.56	3.20	3.19

Similarly, Ittner *et al.* (1997) reported that non-financial performance measures have been emphasised by the organisations following the prospector strategy than the defender organisations. In India Anderson and Lanen (1999) found that organisations following the prospector strategy emphasised more on performance measures such as customer satisfaction, market share and competitors' performance than the organisations following defender strategy. On the other hand, as mentioned above most types of business strategy significantly impact on three types of MAP. It means that the effect of business strategy on MAPs is still unclear. This statement is consistent with other researchers' statements, such as Otley and Wilkinson (1988) and Langfield-Smith (1997).

7.2.3 The Influence of Organisational Structure

Centralization of decision making and formalization of activities are considered as two major dimensions of organisational structure which have implications for the design of MAPs. The respondents were asked their perception of the influence of each dimension of organisational structure on each of the attributes of MAPs. A five point Likert scale was used in this section from 'No influence' to 'Considerable influence'.

Table 7.3 The Influence of Organisational Structure

<i>Kind of organisational structure</i>	<i>Mean scores</i>		
	<i>Cost practices</i>	<i>Budgets practices</i>	<i>Performance measure practices</i>
Formalisation	3.22	3.62	3.15
Centralisation	3.39	3.71	3.36

According to Table 7.3 the responses assume that both dimensions of organisational structure have a significant influence (above the average ratio, 3.00) on all the three types of MAPS. However, they believe that these dimensions have more effect on budgetary practices (3.62 for formalisation dimension and 3.71 for centralisation dimension) than the cost and performance measurement systems (3.22 and 3.15 respectively for formalisation dimension and 3.39 and 3.36 respectively for centralisation dimension). On the other hand, centralisation dimension is considered by the respondents' perception to have a higher impact on each of the attributes of MAPs than formalisation dimension (see the means in the Table above).

7.2.4 The Influence of Production Technology

The respondents were also asked in the questionnaire about the impact of product complexity and levels of customization on MAPs. They believe that both of them have high effect on cost practices, and low effect on performance measure practices, while budgetary practices are highly influenced by product complexity than Customization.

Table 7.4 The Influence of Product Technology

	<i>Mean scores</i>		
	<i>Cost practices</i>	<i>Budgets practices</i>	<i>Performance measure practices</i>
<i>Product complexity</i>	3.41	3.37	2.88
<i>Customisation</i>	3.46	2.78	2.63

7.2.5 The Influence of Characteristics of Organisation

Size, age, type of industry and its ownership are perceived by this research as four major dimensions of the characteristics of organisation, which are expected to have impact on MAPs. As previously indicated, the respondents were asked of

their perception of the influence of each of characteristics of organisation on each of the attributes of MAPs. A five point Likert scale was used in this section from ‘No influence’ to ‘Considerable influence’.

It can be noted from Table 7.5 that the strength of influence these characteristics is different from the characteristic to another and from the attribute to another, for example they see the budgetary practices being affected by all characteristics; however, it is affected by the size more than the other characteristics where the age of company has less effect as its mean is only 3. While, the cost practices are considered to have a significant influenced by the size, it is less influenced by the age and type of ownership, as their means are less than 3 (2.69 for the age and 2.85 for type of ownership). Finally, the respondents also think that performance measure practices are more influenced by the size, whereas the age and type of industry are considered as less important characteristics affect the performance measure practices, since their means are less than 3 (2.84 for the age and 2.11 for the type of ownership).

Table 7.5 The Influence of Characteristics of the Organisation

<i>Kind of characteristics</i>	<i>Mean scores</i>		
	<i>Cost practices</i>	<i>Budgets practices</i>	<i>Performance measure practices</i>
Size	3.72	3.51	3.54
Age	2.69	3.00	2.84
Type of industry	3.41	3.24	2.66
Type of ownership	2.85	3.26	3.11

7.3 Analysis of Interview Data

The results shown in this section were drawn from semi-structured interviews conducted with 10 Libyan surveyed companies which were selected to represent different characteristics such as sectors and sizes. However, as indicated earlier in Chapter four the sample depended on companies' agreement to participate in interviews. Companies' classification is shown in Table 7.6. Interviews were undertaken during August and October 2008 solely by the researcher using Arabic language.

Table 7.6 The Detail of interviewed companies

Companies	Sector	Interviewees	Duration
A	Manufacturing	Head of cost department	95 minutes
B	Manufacturing	Financial Manager	115 minutes
C	Manufacturing	Financial Manager	90 minutes
D	Manufacturing	Financial Manager	80 minutes
E	Manufacturing	Financial Manager	105 minutes
F	Manufacturing	Financial Manager	85 minutes
G	Oil and Gas	Head of cost department	125 minutes
H	Insurance	Financial Manager	85 minutes
I	Bank	Financial Manager	70 minutes
J	Hotel	Financial Manager	75 minutes

These interviews help to add clarifications and to confirm the results which are derived from using the questionnaire survey. Moreover, the respondent interviewees could also provide explanations for why either this relationship is found or not. These findings may lead to new issues and ideas that can be investigated in the future.

As explained in Chapter Four, notes were taken during the interviews and rewritten immediately after the end of each interview. There are several techniques that can be used to analyse qualitative data such as content analysis, pattern matching, explanation building, template analysis, analytic induction, narrative analysis and grounded theory. Some of these techniques are seen as highly structured, formalised and proceduralised, while others accept a much lower level of structure (Saunders et al., 2009). This study adopted content analysis to analyse the qualitative data collected from semi-structured interviews owing to the suitability of this technique for the nature of the research undertaken. This technique is broadly used in social sciences studies due to its ability to reflect the actual reality of a phenomenon and derive meaningful information from text messages. As Easterby-Smith et al. (2002) explained content analysis is very useful, more appropriate and more aligned with a hypothesis testing and deductive approach as is the case with the present study, rather than with the inductive hypothesis generating approach.

The procedure of content analysis begins with identifying key constructs, themes, outlines or categorises based on the theoretical research model or research

objectives the researcher seeks to explore. Based on this and the findings from the survey, the key constructs that were used as the main categories in content analysis are related to whether the interviewees believe that each dimension of the contingent factor (i.e. external environment, business strategy, organisational structure, products technology and characteristics of organisation) has an impact on MAPs in the general perspective, which types of MAPs (i.e. cost, budgets and measurement performance) can be affected more than others and how and why, whether these factors have an impact on MAPs in a company-specific perspective, and which parts of MAPs are affected and how and why. Therefore, their answers are analysed and presented according to this order.

7.3.1 The Influence of External Environment

1. General Perceptions of the Impact of External Environment on MAPs

Almost of all interviewees believe that external environment has significant positive impact on MAPs. They stated that the highly competitive, changing or volatile and turbulent environment makes managerial planning, control and performance measurement more difficult which requires more diverse and more sophisticated accounting information. The following are examples of their replies:

“Changing environment requires instant and timely information, which requires a company to prepare periodic reports on annual, half yearly, quarterly, monthly and sometimes even weekly”. (Company A)

“When a company operates in a volatile environment its accounting system should be ready to provide any information to assess the internal and external conditions of a company” (Company F).

“Dealing with the dynamic environment needs a variety of detailed and accurate information which should be provided in right time”. (Company H)

The interviewees' views were identical to those reported in the management accounting literature. For example, Chapman (1997) argues that accounting may play important roles in all the levels of uncertainty encountered. In an earlier study, Gordon and Miller (1976) argued that when there is a high environment uncertainty level as a result of dynamic and hostility, the organisation tends to

adopt large amount of information (i.e. financial and non- financial). In addition, this result is consistent with questionnaire survey findings presented in Section 7.2.1.

In regard to different types of MAPs, which can variously be affected; one half of the interviewees (e.g. 5 out of 10) (company A, B, C, D and G) revealed that all these types namely: cost, budgets and performance measures, are highly affected and they also indicated that it is so difficult to determine which of these factors would be affected more than others, as these practices are correlated to each other. An interesting point is that two of the respondents (i.e. company A and G) exposed that external environment indirectly affects cost and budgets practices through performance measure practices. For instance, the measurement of divisional profit and benchmarking as instrument of performance measures requires cost and budget information.

“Look, we cannot say that competitive or turbulent environment affects the cost accounting practices tools more than the budget practices, or vice versa, because these practices like tissues are linked to each other... for example the precision in the preparation of budget requires accurate cost information to be a successful instrument for measuring performance fairly”. (Company B)

“All the instruments of management accounting are tools for controlling, planning and performance measurement, the purposes of these instruments are helping senior managers to achieve company’s goals....these goals will be achieved through company performance, so from time to time the company needs to measure its performance... based on the results of this measurement the necessary instruments for planning and control will be adopted.... In other words, the company's strategic goals determine the appropriate performance measures and based on these measurements, the other appropriate management accounting instruments will be determined.” (Company G).

Furthermore, two of the respondents (i.e. company E and F) argue that costing practices can be highly influenced by highly competitive, changing or volatile and turbulent environment, in comparison to budgets and performance measure practices. These interviewees believe that costing practices play an important role in companies that operate in highly competitive and turbulent environment to deal with their environment. They also believe that products/ service prices are one of

the competition basics, as well as, reduction in prices is usually associated with reduction of costs. Therefore, calculating and controlling of costing is one of the priorities for companies work in competitive environment. Similarly, this finding supports, clarifies, and a supplement to those derived from the questionnaire survey presented in Section 7.2.1.

“It is known that the price firstly and quality secondly are the most important elements of competition... and any company cannot reduce their prices more than its competitors if the costs that the company incurs are more than the costs which are incurred by competitors, Otherwise, the company will have to sell at a loss. Therefore, the cost system must be able to provide detailed information on cost structures, such as what are the fixed costs and variable costs? The costs that can be dispensed and the costs that cannot be dispensed and what are the Sunken cost Etc,, so I think that the system cost is affected by the external environment and even more than the budget system and performance measurement, which are also affected but to a lesser extent”. (Company F)

The remaining three respondents (i.e. companies H, I and J) revealed that external environment has impact on all MAPs including cost, budget and performance measure practices. However, performance measure practices may have been affected more than other practices. These companies also confirmed that performance measures are of paramount importance for companies that work in volatile and competitive environments, especially non-financial performance, with taking into account that cost and budget practices are also important for controlling, planning and making decision.

“Under a highly competitive environment, the need for diversity in the use of multiple performance measure practices is very urgent... especially non-financial performance measures practices.... without forgetting the importance of other instruments, I mean cost and budget practices”. (Company J)

2. The Impact of External Environment on MAPs in Company Specific Perspective

In regard to the condition and effect of the external environment on Libyan companies, most of the interviewees (8 out of 10) (i.e. companies C, D, E, F, G, H, I and J) commented that surrounding external environment has become highly competitive, changing or volatile, and turbulent environment. Five out of eight

respondents (i.e. companies E, F, G, H and J) stated that they been working in stable and less competitive environments 10 years ago before the proceedings of deregulation economy enforced, even though, three of these companies (i.e. E, F and H) are monopoly companies. Whereas, the remaining three companies (i.e. companies C, D and I) revealed that they were established within deregulation economy stage, as result of deregulation of economy proceedings, therefore, they are being facing competitive and turbulent environment since they were established.

“We as a state-owned company and a few other companies which also were state-owned companies were dominating our domestic market, but with the beginning of 2000s, as a result of the deregulation of economy, this situation started to change and new competition was created which put us in great challenges”. (Company G)

“Our external environment has completely changed since we were a company monopoly supported and protected by the state; suddenly, without warning, we found ourselves in a competitive environment which caused many operational problems and which made us unable to fight in competition”. (Company E)

Whilst, only two respondents (i.e. companies A and B) declared that the external environment has generally changed, however it is still sympathy lack of competition and turbulence. Therefore, they still operate in stable environments and hold dominates over the market.

“Yes, despite the changes which happened in the Libyan environment and the economic transformation which occurred, this did not affect much on our products and our sales, our products are still highly traded in the local market as before or more, and demand is still more than supply”. (Company B)

3. Reasons for the Lack Effect of the External Environment on MAPs in Libyan Companies

Although most interviewees (i.e. 8 out of 10) stated that external environment witnessed significant changes, and as revealed earlier that external environment should have significant impact on MAPs, all interviewees admitted that the impact of these changes on MAPs is considerably weak. Once again, these findings support and clarify those were derived from the hypotheses tests in Chapter 6

Subsection 6.3.1, which state that external environment has not got a significant impact on MAPs. Likewise, they mentioned several reasons for the lack of effect of the external environment on MAPs in Libyan companies.

A. Lack of Top Management Support

One half of the interviewees (i.e. companies E, F, H, I and J) provided identical comments and also confirmed that there is a lack of awareness of the importance of MA information from top management, as well as a negligence of the role of MA information for decision-making purposes. In addition, some of these interviewees (i.e. companies E, F, H and J) indicated that general managers of these companies were appointed by the government, who are neither professional nor qualified, even though most of them hold various qualifications of engineering. Therefore, they do not believe in the importance and benefit of accounting information in decision-making process; and hence they are not interested in improving MAPs.

“A lot of decisions are taken by top management without return or consultation with the accounting management, or the necessary accounting information to do so”. (Company J)

“The common problem of Libyan industrial companies is that their managers are engineers who do not believe nor fear accounting information, but they see themselves being able to make rational decisions without the use of accounting information, particularly with regard to planning and forecasting”. (Company E)

B. The Absence the Culture of Using MAPs in Decision Making

One issue that revealed within the conducted interviews as a reason for lack of changes in MAPs as response to chang that was occurred in the external environment are the importance of accurate accounting information and the importance of using them in the decision making. Based to their views, many interviewees do not recognise the importance and the role of the accounting profession whether in the organisational level or the society level like other professions, such as engineering, medicine, legal practice. Moreover, this reason

has been stated by one-half of the interviewees (i.e. E, F, G, H and J), and an interesting story supports this reason was narrated by interviewee H:

“One day we were in a directors board meeting where several topics were put forward for discussion (engineering and technical, legal and financial issues), however, all issues related to engineering and technical and legal were referred to the relevant departments for consultation and opinion, but on financial matters (I mean budgets) every one gave their opinions except me. One of the attendees looked at me and asked me why I am silent? He said you should be the first one who speaks, because we discuss issues related to your job. I told him, it seems you do not need me to be with you, because all other issues are referred to specialised departments and people, except financial cases, you look experts in these issues”. (Company H)

One possible explanation for this, it may as one interviewee (i.e. F) stated, is that when a mistake is made by a doctor or an engineer the impact of this mistake is directly spotted and become visible, whilst in the case of accounting professionals, the impact of committed mistakes are not being directly recognised and become invisible.

“In my view, the benefit of the accounting profession is not visible to the eyes as the case for some other professions”. (Company H)

C. Lack of Knowledge about MAPs

The other reason for lack of impact of external environment on MAPs in Libyan companies, which was clearly concluded from interviews, is lack of knowledge about MAPs by Libyan management accountants. This reason was emphasised by seven interviewees (i.e. companies C, D, E, F, G, H and J). Some of these interviewees (i.e. companies C, E, G, H and J) openly stated this reason; by reporting that some of Libyan management accountants do not have sufficient awareness of MAPs and their purposes, especially modern MAPs. This is likely due to the fact that the accounting education systems in Libya still depends on the traditional method of learning, and the applied systems are restricted to traditional MAPs. In addition, the interviewees also illustrated that there were no sufficient training programmes for accountants, which help expand the perceptions of accountants to understand MAPs, and make them being creative and problem solvers.

“In fact, most of the accountants, and I am one of them, whether they are new graduates or old do not have full knowledge about all MAPs, I think this is because of the accounting education systems in our universities and colleges, which have not developed since their establishment”. (Company G)

Lack of attention accountants qualifies, both during their study or after graduation and working through intensive and targeted training programs. (Company J)

Moreover, two of the interviewees (F and D) did not openly admit that Libyan management accountants do not have enough knowledge about all MAPs; instead, they gave wrong views about some MAPs, which have led the researcher to judge that those interviewees do not have adequate information about these practices.

For example, we do not need to apply ABC because our company has only one activity; hence we do not need the allocation of costs between activities. (Company D)

D. Shortage of Financial Resources

Obviously, the development update the MAS from time to time require the financial capacity as result of business environment requirement. Lack of financial resources was the reason for the lack of change in MAPs in three interviewed companies for their response to the impact of the external environment. The significant change that has occurred in external environment has caused some companies to fall in a financial hardship; some of them are not even able to fulfil their necessary financial obligations. Two of those interviewees mentioned that they been requesting to change and develop MAS, but the company's financial status do not allow them to do so.

“As I mentioned earlier we were a monopoly company under state protection, suddenly we found ourselves working in a completely different environment, which is characterized by competition and a multiplicity of options. This change caused us great losses, and created a difficult financial condition. Therefore, now, our attention is mainly focused on meeting the necessary obligations; with regard to the MAPs changes are not one of our priorities, despite we need this change very much”. (Company E)

“Change is not easy as it requires the costs and at the present time, we can not incur it”. (Company F)

E. Fear of Change “change is not always a success”

Changing or developing MAPs is not purpose on its own, but it is mean for improving an organization’s condition. Therefore, care must be taken when making any change for better success and to achieve the preset aims, especially, in the case of using unfamiliar MAPs by the organisation. In addition, a change requires a big challenge and to take risky measures by the organization, as well as needs responsible decisions by managers. Therefore, the organisational culture plays an important role in MAPs development. The following statements have been quoted from three interviewees’ statements (i.e. companies G, H, and I):

There is always the fear of change and its implications. (Company I)

In my opinion, this is due to company’s policy, some companies always seek to change and they are willing to bear the consequences, while there are companies that prefer the stability and they fear from the failure which may be resulted from the change... Unfortunately, our company is from the companies which fears for change. (Company H)

7.3.2 The Influence of Business Strategy

1. General Perceptions of the Impact of Business Strategy on MAPs

Interviewees were asked about the impact of business strategy namely, Miles and Snow typology (1978), Porter typology (1980) and Govindarajan and Gupta typology (1985). Six interviewed company respondents (i.e. companies A, B, C, E, G and H) indicated that business strategy has significant impact on MAPs. While the remaining interviewees (D, F, I and J) believed that business strategies has not effect on MAPs as all kind of business strategies required broad and accurate accounting information for planning, controlling and performance measurement. The this view is consistent with the questionnaire survey findings presented in Subsection 7.2.2, and Table (7.2), which indicates that the impact of all kinds of business strategy on the three types of MAPs are more than 3.00, except for the impact of the differentiation strategy.

“These different strategies are methods or ways for fighting the competition field to gain or maintain a major market share; thus whatever method is used, it will need to combine different kinds of information”. (Company B)

“I believe all strategies need comprehensive and accurate accounting information regardless of the type of strategy”. (Company D)

Whilst, six interviewees emphasised that MAPs have an important role to support the strategy of the business in order to lead to a superior performance, which is consistent with literature suggestion (e.g. Dent, 1990; Samson *et al.*, 1991; Simons, 1987a, 1990). However, they have different views about impact of various strategies on different MAPs namely cost, budgets and performance measure practices. These views are presented as follows:

Firstly, for build/ harvest and prospector/ defender strategies, 5 out of 6 (i.e. except for G) interviewees revealed that there is a level of consistency between build and prospector strategies, and harvest and defender strategies, in particular for budgets and performance measure practices.

“Actually, I think there is no big difference between the build strategy and the prospector strategy and also no difference exists between the harvest strategy and the defender strategy. Both build and prospector companies usually seek to expand their market and diversify their customers, while harvest and defender companies focus on their current market share and they just want to maintain their share with the lowest possible cost”. (Company A)

“Build and prospector strategy are challenging with an ambitious strategy, while harvest and defender strategy tend to be calm”. (Company E)

They stated that build and prospector strategies are more relying on MAPs; especially those encourage increasing the productivity and efficiency, creativity and innovation, inflating the market share and entering new markets. Therefore, build and prospector strategies place importance on forecasting data, careful monitoring of outputs, customer satisfaction and market share. In addition, they emphasise on frequent reporting and sometime use the uniform control systems. Again, the results are consistent with the questionnaire survey findings presented in Subsection 7.2.2 Table 7.2, where the means of the effect of build and prospector strategies on performance measure practices were found to be 3.67 and 3.77, respectively, which are more than their own cost and budgets practices.

“Build and prospector companies are challenging and ambitious companies, while harvest and defender companies tend to be calm,..... the build and prospector companies need more short-term and long - term planning and evaluation of financial and non-financial performance, they also, need to motivate their employees and managers and encourage them for innovation and development. Therefore, they focus on MAPs which are used for these purposes for example capital budgets and budgets for forecasting”. (Company E)

Whilst, those interviewees described the opposite strategies namely, harvest and defender strategies as stabilised and maintain strategies, which usually used by mature companies. These strategies are less rely on MAPs and focuses mainly on simple, traditional and financial practices; for example fixed budget, return on investment and meeting budget target.

“Harvest and defender companies do not tend to change, develop or increase its production capacity; so they only usually use the traditional and simple MAPs, for example fixed budget rather flexible and focus only on financial measures for example net vinegar and sales, and they do not need to study the market and customer preferences as they may already have been studied”. (Company B)

In regards to strategy and cost practices, there is some agreement among interviewees that cost practices have equal importance in companies applying a defender or prospector type, and build or harvest type strategies. However, they stated that more intensive and sophisticated cost practices, such as ABC, and target costing and quality cost reporting, are more required in build and prospector strategies compared to harvest and defender strategies. Once more, the results of interviews are consistent with the questionnaire survey findings presented in Subsection 7.2.2, where the mean values of impact of these strategy on cost practices are more than average (i.e. 3.00), whereas in case of build and prospector, the mean values were a little bit higher than that for harvest and defender strategies.

“Look, the quality and cost are very important elements to continue in the market, regardless of the business policy which is followed”. (Company C)

“Cost practices are very important for all types of strategies, but perhaps structures and cost classifications are more complicated in prospector companies, which prompt them to resort to more sophisticated practices such as which is known as ABC and quality cost”. (Company G)

Secondly, for differentiation and cost leadership strategy, it was understood through the interviews that MAPs used in companies following differentiation strategy were not different from the MAPs used in companies following cost leadership strategy. The interviewees' views were in agreement with Shank (1989) who stated "*most MAPs may provide benefits to organisations emphasising either product differentiation or low cost strategies*". However, the managerial mentality of differentiation and low cost strategies is different, which likely affects some preferences for particular MAPs. For example, they suggested that cost leadership strategy focuses more on tight cost controls "controlling cost", but both need intensive, sophisticated and multiple MAPs. It is partially consistent with the questionnaire survey findings presented in Subsection 7.2.2 Table 7.2.

"Differentiation and cost leadership are two strategies for competition but unlike build/ harvest strategies, both these strategies (I mean differentiation and cost leadership) seek to maximize sales and gain customers and increase market share, but each of them has a specific way and targets a specific type of customers to gain their attention, confidence and satisfaction. For example differentiation strategy targets high-income people, who are more concerned with luxuries rather than price, with no significant exaggeration in the price". (Company G)

2. The Impact of Business Strategy on MAPs in Company Specific Perspective

After giving their opinions about the relationship between business strategy and MAPs in general, the interviewees were asked to classify themselves within the appropriate types of business strategies mentioned earlier, which suits their company business, and how this strategy has affected on MAPs. Apparently, it was noted that most of the participants stated that there is no clear strategy declared by their companies; however, they determine their business strategy based on the concepts of these strategies, which are provided for them by the researcher.

According to the ten interviews, three interviewees (i.e. companies: C, D and I) indicated that their companies follow the build strategy, while four interviewees (i.e. A, B, G and J) stated that harvest strategy is applied in their companies. Differentiation strategy was confirmed by four companies (i.e. A, G, I and J) to be

used, whereas, the opposite strategy namely cost leadership was applied in three companies (i.e. D, E and F). Only, two interviewees (i.e. D and H) revealed that their companies adopt prospector strategy, whilst, three companies (i.e. E, F and G) adopts defender strategy.

“The fact is that there is no clear direction by the company to adopt a particular strategy, but based on the concepts which you have cited on these strategies, we can put the company under differentiation harvest and defender strategy”. (Company G)

“I do not know exactly but our company is very close to differentiation strategy”. (Company J)

Based on the effect of business strategy on MAPs, the interviewees’ views can be classified into three groups:

The first group sees that business strategy, which is adopted in their companies, had impact on MAPs. This group comprises of three interviewees (i.e. A, G and H), who revealed that there were regular updates for their accounting systems, for a purpose to meet their business strategy requirements. The interviewees also believe that MAPs that are used in their companies are, in a large extent, appropriate and supportive to their business strategy, especially budgets practices. Whilst, there is a number of MAPs, which are not used in their companies, as they are needed in such companies. However, the interviewees admitted that there is a lag in using MAPs, this is due to the lag of Libyan environment as a developing country, because accounting sciences, like other sciences, is well developed in the developed countries and is still in the developing stage in the developing countries. This finding supports and clarifies those derived from hypotheses tested (see chapter 6 hypotheses 4, 5 and6).

“Yes I can say that. We always try to develop the information system, and accounting information is part of it, and we have plans, programs and training for accountants, programmers and analysts. We use and consult experts in this area to gain the advantage of recent developments in information technology. Also, there are consultations and the exchange of information between related departments of the company. The management of the company is always keen to acquire all that is good for the company, but this does not mean that everything is new is good for us”. (Company G)

“Of course, the business strategy which is followed by our company was one of the factors that were taken into account as much as possible when the MAS was designed, but on the other hand there are some MAPs which are not applied in this company or surrounding companies, due to lack of knowledge about these. In addition, it is not right to compare these with those which are applied in developed countries because we, as developing countries are not compared with developed countries in everything, not just in accounting”. (Company A)

The second group is not sure whether the business strategy, which is followed by their companies, had any impact on MAPs or not. This group includes one interviewee who is interviewee B. This interviewee demonstrated that the current MAS was designed in 1990 by a committee of accounting experts. This committee was provided all the necessary information, such as organisational structure of the company, business nature, size and financial and business policies. Therefore, it is expected that the business strategy for this company has been taken into account. In addition, neither MAS nor business strategy have not been significantly changed since then.

“It is hard to say that the strategy had effected or not. Our current MAS was designed in 2009 by a group of experts in this area, they were given all the necessary information and company’s policies; according to my opinion certainly the business strategy has been taken into account at that time, but now there have been some changes in the business environment without making any changes or modifications in MAPs”. (Company B)

“We are a relatively new companytherefore the MAS is still under development”. (Company C)

The third group emphasised on the fact that business strategy has not affected MAPs. This group includes six companies (i.e. C, D, E, F, J and I), from which four interviewees (i.e. D, F, I and J) indicated earlier that they do not believe that MAPs are affected by business strategy, therefore, they hereby confirmed that their MAS were designed without considering business strategy. Whereas, interviewee E demonstrated that all surrounding conditions of his company have been changed including business strategy due to external environment change, however MAPs have not been changed, and the interview also provided some reasons for lack of change in MAPs mentioned earlier in Subsection 7.3.1. Finally, the interviewee C revealed that his company is relatively new established

and still under construction, hence all its systems including MAS are still in the process of incorporation and development.

“As I have already told you the strategy has no impact on MAS; I have worked in another company and I did not see the essential difference between these two companies, even if there are some differences I see these are not caused by strategy”. (Company H)

“Simply MAS has not changed, despite the fundamental changes that have happened, it means MAS did not respond to these changes”. (Company J)

7.3.3 The Influence of Organisational Structure

1. General Perceptions of the Impact of Organisational Structure on MAPs

The other factor which was discussed with interviewees is the effect of organisational structure: namely centralisation and formalisation on MAPs in general and in particular within interviewed companies.

Firstly, for centralisation, one-half of the interviewees (i.e. D, E, F, I and J) think that centralisation does not have effect on MAPs, in their views, the benefit which is gained from MAPs for centralised companies do not differ from that for decentralised companies.

“I do not agree at all with those who say that the importance and usefulness of accounting in companies with centralisation of organisational structure are different from those in companies with decentralisation of organisational structure”. (Company F)

“I do not see any effect of centralisation or decentralisation on MAPs”. (Company J)

While, the other half of interviewees has opposite view, they argued that centralisation is considered one of contingent factor of MAPs. Three of them (i.e. B, C and H) emphasised that centralisation has negative impacts on MAPs, especially those related to decision-making. They indicated that within centralised companies, the decision-making process is usually done by top management. Therefore, the interviewees C and H expect that the expansion in using MAPs in such companies have caused overload of information for decision makers, which would negatively reflect on their performance. Moreover, interviewees B and C

pointed out that use of many different MAPs would generate many different information and details, hence, according to decision makers' perspective; some of information would be conflicting and contradictory for them. In addition, interviewee B confirmed that the accounting reports in the centralised companies are less frequent and aggregated than those in the decentralised companies. This finding also supports, clarifies, and supplements the derived results obtained from the questionnaire survey presented in Section 7.2.3.

“Centralisation means that decision-making is restricted to top management, so the availability of large amounts of information as a result of the application of a grates number of MAPs may cause overburden and confuse this management. In addition, it (top management) is accustomed to using specific information specifically for a particular decision and it ignores any other information available, it perhaps the reason for this is that this management does not understand the precisely the implications of this information.....sometimes some information is not well understood and as result it is thought to be conflicting”. (Company C)

“Due to the limited capacity of top management to understand and deal with the great amount of information may lead to omission of important information when making a practically decision. ... I believe that it is not appropriate to provide accounting information on a regular basis, but only provide when they (top management) need it or request it, and have to be provided clearly in order not to be misunderstood”. (Company B)

Interviewees A and G demonstrated that the effect of centralisation on MAPs is within characteristics of MAPs. They reported that the characteristics or types of MAPs, that are sufficient for centralised companies, are no longer sufficient for decentralised companies, especially for budgets and cost practices. For example, interviewee A declared that budgets system in the decentralised companies is more meaningful rather than centralised companies. In the decentralised companies, the budgets are detailed and the comprehensive plans contain number of partial budgets, which represent micro-plans. These partial budgets are prepared by the related departments or division (lower management) with coordination with other relevant departments, and under the supervision of senior or top management, which is consistent with the overall goals and policies of the company. In the implementation phase, each department is primarily responsible for implementation of its partial budget, and equally, it is responsible for discovering the deviations and interpretation of their causes. Therefore, it can be

argued that the important purposes of the budgets in this kind of companies would include: communicating plans to company departments, coordinating activities across the business units and motivating departments or units' managers to strive achieving targets. Unlike in the decentralised companies, the budgets system in the centralised companies is sketchy and less detailed, and the burden of implementation falls on senior or top management, and even on the lower departments through their participating in the implementation preparation process. Furthermore, the purposes of these budgets are restricted to traditional purposes, such as planning annual operations, planning financial position, and controlling the activities of departments by top management.

The form and objectives of budgets in decentralised companies should be different from budgets in centralised companies. In the first one (decentralised companies) the budgets are comprehensive and detailed as far as it consists of a partial budget for different departments, which are prepared by departments themselves and under the supervision of top management, with coordination between different departments.in centralised companies the budgets carry total compressed data. Of the primary purposes of the budgets in decentralised companies are for coordination and communication between the various activities and to motivate employees, in addition to being a instrument for planning, controlling and performance measurement which are consistent with the objectives of the budget in decentralised companies. (Company A)

In addition, interviewees A and G indicated that only traditional cost practices, such as full costing and variable costing, are sufficient for centralised companies. However, the traditional costing practices are no longer adequate for decentralised companies, where the mix between traditional and advanced cost practices is more applicable.

“Traditional MAPs proved their feasibility in decentralised companies, but in decentralised companies the modern MAPs have become more feasible and beneficial”. (Company G)

Secondly, for formalisation, interviewees (i.e. A, C, D, G, H and J) equally revealed that MAPs were affected by formalisation. However, there were two contradictory views, C and J believe that formalisation has a negative impact, whereas A, D, G and H believe that formalisation has can be advantageous. C and J indicated that formation kills the creativity and development, which is

eventually, reflects on MAS. The formalised companies prefer traditional practices of management accounting, particularly with regard to budgets, as they are considered the core of the controlling and performance evaluation. In addition, budgets in these types of companies are mostly characterised by fixed and static over time.

“It is known that the formalisation policy is to follow the procedures without trying to change. Workers in these companies usually know exactly what they have to do, but they do not know why they do so. The formalisation has a negative impact on the change, development and innovation. In the management accounting area, we find that these companies tend to use traditional MAPs, even though the traditional MAPs, which were used in the past years. The managers do not need to use MA information in many cases”. (Company C)

“Individuals in these companies focus on actions rather than goals, because they know very well that they are assessed by their following of the orders. Formalised companies seem to place more importance on budgets and use them as instruments for controlling and performance evaluation”. (Company J)

Whereas, interviewees A, D, G and H stick to fact that MAPs are one of the formal procedures in formalised companies, in which they must be implemented and followed. Therefore, it can be argued that MAPs play an important role in the formalised companies. This finding is in full agreement with Agarwal’s argument (1999, p. 363), which states that *“using MAPs, namely non-financial performance measures, is expected to reduce the negative effect of formalisation by increasing managers' flexibility, to do what they deem appropriate to meet the formalisation was positively associated with most MAPs attributes”.*

“I think formalised companies should focus more on the diversity of use of the MAPs, because these practices are considered as guides of the employees and managers. Therefore, these guides should be designed well to get good”. (Company H)

Worthily, it is mentioned that the results of the survey questionnaire also indicated that the formalisation has an impact on MAPs, especially on budgets practices

2. The Impact of Organisation Structure on MAPs in Company Specific Perspective

For centralisation, all interviewees agreed that their companies are categorised under centralised companies. However, some of them (i.e. A, D, G and H) revealed that centralisation in their companies is not highly applied. As mentioned earlier, there were only five interviewees recognised the impact of centralisation on MAPs. However, two out of five (i.e. A and G) confirmed that MAPs in their companies have been affected by centralisation. Moreover, interviewee A explained that the level of centralisation in his company is not very high; it is just more than average, it implies that the lower and middle departments involve to some extent in the decision-making processes. It affects practically on budgets practices, as the company uses wide enough budgets practices, which are prepared with the participation of all managerial levels. On the other hand, he indicated that the effect of centralisation on cost and performance measures is very low or even not exist at all. The respondent also explained the possible reason for this might be referred to the lack of sufficient knowledge about these practices.

“We use all types of budgets, which are prepared by lower and middle departments under the supervision of top management, but the influence of centralisation on cost and performance measure practices seem very low or none, the possible reason being that there is still a lack of awareness of these practices”. (Company A)

Interviewees A and G emphasised that there is a fairly interesting of understanding and using of management accounting information in all managerial levels as a result of delegations of authority granted by the senior management to the lower managerial levels. This may promote growth in the use of MAPs in the processes of planning, controlling, performance evaluation and decision-making during the near future in their companies.

“The top management gives some decision-making powers to the lower departments, which make them familiar with using MA information. This will encourage the company to use more MAPs in the near future”. (Company G)

Although interviewees B, C and H emphasised that centralisation has a negative impact on MAPs, they doubt that this applies to their companies. As revealed

earlier by interviewee C that his company is relatively newly established and still under construction, hence all its systems, including MAS, are still in the process of incorporation and development. While interviewee B, as indicated earlier, pointed out that MAS of his company was designed in 1990, and since that it has not changed, though numerous changes in the level of centralisation have been occurred. These changes, however, occurred as a result of change of ownership kind, through which the company has become private after it had been a state-ownership company. This finding also confirms and explains the results depicted in Chapter 6, Subsection 6.3.3 (result of hypothesis 7)

“Our current MAS was designed in 1990, but now there have been some changes in the business environment without making any changes or modifications in MAPs”. (Company B)

“We are a relatively new companytherefore the MAS is still under development”. (Company C)

For formalisation, all interviewees stated that formalisation is a common characteristic of their companies. However, three interviewees (i.e. A, G and H) believe that the formalisation in their companies is high, and it might be one reason behind using sophisticated MAPs in their companies, especially the cost practices. This is consistent and also confirms the hypotheses results discussed earlier in Chapter 6 (Subsection 6.3.3, hypothesis 8).

“I think that one reason behind the development and a greatest dependence on the use MAPs in our companies are the formalisation in doing the company work”. (Company A)

“The MAPs are one of the formal procedures of the company in terms of task performance or control or performance evaluation, for these purposes the company focus as the application of most of the budget practices”. (Company H)

On the other hand, interviewee J, who agrees that formalisation has a negative impact on MAPs, believes that also MAPs in his company have been influenced by formalisation. He also claimed that formalisation is a reason for avoiding usage of most MAPs, especially cost and organisational performance practices, in his company. Furthermore, respondent J also sees that the disposal of formalisation is antecedent of MAPs change or development.

“Yes, our companies are characterized as formalised companies which is one reason for the lag of MAPs. Formalisation leads to a lack of desire for change and development in. I think that giving up formalisation will be the reason for change and development MAPs”. (Company J)

Whilst, interviewees C and D revealed that MAPs in their companies have not been affected by formalisation. Similarly, they depicted that the reason for that is similar as referred earlier in the centralisation, which is their company is new.

7.3.4 The Influence of Technology

1. General Perceptions of the Impact of the Technology on MAPs

The interviewees were asked about the impact of product complexity levels on MAPs. Product complexity was defined as diversity of batch sizes, physical size, raw materials and the degree of complexity as result of the number of products and different product variations. In this study, all interviewees agreed that product complexity has positive impact on MAPs, practically on cost practices firstly and secondly on budgets practices. Whereas most of the interviewees revealed lack of impact of product complexity on performance measures practices. These findings are consistent with those derived from the survey presented in Subsection 7.2.4.

In the cost practices context, six out of ten interviewees (i.e. A, B, C, E, G and J) argued that when there is high product complexity the one allocation method seems to be not adequate to capture accurate product costs. Therefore, there is a great need to a cost system, which allows for multiple cost drivers that can be tailored to represent different features of each product's composition. Similarly, one-half of the interviewees (i.e. B, D, F, H and I) indicated that unsophisticated traditional costing systems are unlikely to be sufficient for product complexity, as large number of cost pools and drivers are needed to deal with this case to avoid the distorted product cost, which may arise with simplistic costing systems.

“Product diversity means that the process of production is very complex and thus it makes the process of cost allocation very hard, as there are many cost and responsibility centers. This will lead to the adoption of a more sophisticated cost system”. (Company E)

“The simple traditional cost system is no longer fit for companies as their production processes are very complex”. (Company H)

Equally, all interviewees demonstrated that this observation might also been applied on budgets practices but with less emphasise, as the differences in consumption among all identifiable activities are dependent on product design, manufacture, and distribution batch sizes will positively affects on the amount and types of budgets, the degree of detail, and degree of accuracy and importance in controlling and determining of responsibility. However, only two of the respondents indicated that product complexity has an effect on the performance measures.

“Budgets are also not isolated from this influence”. (Company B)

“I also think that product diversity has a positive impact indirectly on budget practices through the cost practices”. (Company J)

All interviewees confirmed that the results derived from the survey which represent the degree of customisation affect only cost practices. One-half of the respondents (i.e. C, D, H, I and J) believe that high level of customisation leads to maintain those companies’ activities to become a non-repetitive nature, so that enable them for new set standards. Therefore, and for this reason, they also believe that sophisticated costing system, such as detailed tracking of costs, is highly required. The respondents also indicated that in such productions, in most times, there is no standard pricing or market pricing based on market factors, instead, the price is determined based on direct negotiations between the company and the customer, in regards to the specific needs of customers. Therefore, selling prices are derived directly from cost information by estimating future product cost and adding a proper profit margin. In this case, the company should be able to estimate the cost of this product accurately during the negotiation process, and before starting the production process.

“In case of customized products, the cost of the products must be calculated accurately, because the determination of the price of the sale of these products is through negotiation with the customer based on specific requirements; so there must be an accurate mechanism for determining the cost, such as how to set of variable and fixed costs and how to separate the variable costs from the fixed cost”. (Company D)

“Here the price decisions are not taken through the base of the market (demand/ supply), but it is taken by a direct agreement with the customer; therefore, the price is put based on the estimation of actual cost plus the profit margin. The lack of precision in the calculation of costs may lead to the loss of some customers if the costs are exaggerated, or caused the loss if the costs are understated the price. Thus there is a need for a sophisticated cost system which accurately identifies the cost structures, causes and drives the cost and also the conduct of cost”. (Company J)

On the contrary, the second half of respondents has different view. They believed that the sophisticated costing system is quite adequate in standardised manufacturing processes, as they pointed out that the volume of production and costs in companies with standardised products are much larger than companies with customised products. They added that most of these companies that operate/faced by local and global competition, and their product selling, are price takers. Hence, they believe that the importance of cost controlling is very important and necessary.

“For standardised products in many cases, the cost of these products is not a factor in pricing decisions; it means that the cost is not antecedent of determination of the price, but the price is imposed by market mechanism. Here a company must reduce the cost as much as possible, so that it is not forced to sell below cost. While in customised products, the company has a opportunity to choose not to sell below the cost. Hence the need for reducing and controlling the costs through the use of sophisticated systems which are characterised by accuracy will be important in these companies”. (Company A)

“The volume and costs of production in companies with standardised products are usually large where the price is determined by the strength of competition in the market”. (Company F)

2. The Impact of Technology on MAPs in Company Specific Perspective

Only two interviewees (i.e. A and G) classified their companies among high product complexity, while other interviewees from other manufacturing companies revealed that their companies’ products are medium product complexity.

Respondents A and G also indicated that MAPs in their company, especially budgets practice and cost practices, has been affected to some extent by high

product complexity. For example, both interviewees indicated that as a result of high product diversity their companies use their budgets intensively, which are prepared from different functional areas and hierarchical levels. The respondents also added that their companies not only include all activities such as sales, production, capital expenditure, profit, cash flow, but also include detailed data for each activity; for instance, they include detailed data for each production unit or line, service centres, sales of each product, etc. Similarity, in cost practices; they use numerous cost centres and cost drivers which are based on different activity units (e.g. it can be said that there is partially use of ABC).

“I really see that product diversity has somewhat an impact on MAPs in our company, particularly on budget practices, which the company relies on widely for planning and controlling, as we become familiar with them. Due to product diversity the budget practices include all activities of the company with more details, including a number of activity and responsibility centers. ...Also in case of cost practices, we have tried to divide each activity into many cost centers, and we also rely on many basics for the allocation of cost. However, our cost system still has not developed enough and I expect to be more sophisticated and appropriate in the near future”. (Company A)

The remaining interviewees, however, admitted that the level of product complexity has no effect on cost practices in their companies; they further explained that the cost practices in their companies are very simple which incapable to provide them with much necessary cost information, even in light of their low product diversity. However, for budgets practices, it is might been in better conditions compared with cost practices, as the respondents demonstrated that budgets practices cover most of their companies’ activities, business, and departments. However, these findings are not consistent with hypothesis H9 results, which confirmed that product complexity had impacts on both cost and budgets practices.

“Although our production process is not complex, the cost system of the company is still traditional and too simple. It is still unable to provide the important cost information even if there is no product diversity..... The budgets are used a widely to cover all the activities of the company”. (Company H).

As for customisation, all interviewees categorised products of their companies as standardised products, except for interviewee C who describe the manufacturing process of his company as job shop. On the other hand, this variable has not been considered to have any impact on MAPs, even for who believes that standardisation has a positive impact on MAPs. This is because they reconfirmed their earlier statements, which is MAPs are very simple and there would be no sign for that the nature of manufacturing/service process in their companies was taken into account when MAPs were designed. However this finding does not support the hypothesis test results (H9).

“Our products are standardised, therefore I think that this factor (customization) has not played any role in influencing the MAPs”.
(Company E)

“Theoretically, as we have already mentioned to you the companies that have standardised products naturally need detailed accuracy and a comprehensive MAS in order to be able to reduce their costs to be as minimum as possible. In the practice, however, unfortunately our company and in most Libyan companies their MAS is still primitive and lag, due to many reasons which I have mentioned earlier, regardless of the nature of production, business strategy and external environment and other factors that you have mentioned above”. (Company B)

7.3.5 The Influence of Characteristics of Organisation

The characteristics of the organisation are one factor which was included in the interviews for investigating the extent of this factor on MAPs. This factor has been identified in this study by four variables: namely age of company, size, kind of industry, and kind of ownership. As usual, the interviewees’ presented different and varied opinions as follows:

1. General Perceptions of the Impact of the Age of Company on MAPs

Although the interviewees agreed that old companies have the expertise and experience, and the stability in the use of MAPs compared to newer ones, the need of MAPs for old companies do not differ from newer companies. On other words, the benefit which is derived from MAPs for old companies is similar to that for newer companies. In addition, the interviewees confirmed that there are no

specific characteristics of MAPs that fit only with old companies and others fit with younger ones.

“An old company has more experience than the new one; therefore, the old company is more stable as it has more expertise with most MAPs. However, in general we cannot say that some MAPs are going with an old company rather than a new company or vice versa, as all MAPs are valid for both equally”. (Company A)

“The need to apply MAPs does not differ from old companies and new companies, but other circumstances such as experience make old companies get more benefit from MAPs than the new one. new companies need to recognize the MAPs first, so they usually use the common MAPs, while the olds try to use specific MAPs which they believe are more beneficial to them”. (Company E)

Moreover, interviewees B and H argued further that the effect of the age can only be during the early age (e.g. in the first few years) of the company's life. For example, above 10 years old, the company would become with enough knowledge and experience about most of MAPs, thus it becomes like older companies with age of 30, 40 or even 100 year old.

“The effect of age is always during the first years of the establishment of the company, but after certain years (for example 8-10 years) there is no effect of the age”. (Company H)

Interviewee E revealed that even though the bottom line is not counted in the age of companies, but it would be beneficial for providing experiences of their employees. That means even when companies are still new, their employees would have highly experienced, thus, it would not be a significant effect of company age on the use of MAPs.

“I think that the experience of employees and the company's management have a greatest impact than the company's age. If a new company is established by people who have wide experience, I expect that this company will use a wide set of MAPs which are actually needed”. (Company F)

This finding would also support, clarify, and supplement those results derived from the questionnaire survey, in both forms: in terms of descriptive results presented in Subsection 7.2.5 and hypothesis results presented in Chapter 6 (Subsection 6.3.5, hypothesis H11).

2. General Perceptions of the Impact of Size of Company on MAPs

One-half of the interviewees classified their companies as large, while the rest of interviewees suggested that their companies are of medium size. Except for two respondents (i.e. I and J), all interviewees revealed that MAPs can be affected by company size, though they have given different views. Six interviewees (i.e. A, B, D, F, G, and H) indicated that company size has a principal effect on budgets practices, as budgets includes plans related to production and sales, expenses and cash flows for next periods. Therefore, budgets practices can be good tool for controlling and performance evaluation of various departments and activities of the company.

“In large companies the most important functions of management are planning and controlling, which the budgets are the most important instrument for them, as they carry with them the plans which are forwarded to implementing them in the following year which would be the basis for controlling the performance of various activities”. (Company G)

“Budget plays an important role in large companies to achieve their goals, which have been drawn in the form of budgets”. (Company F)

Whereas, four interviewees (i.e. A, C, E and G) emphasised that there is an impact of company size on performance measure practices. They added that it is enough for small enterprises to use only one or two traditional financial performance measures, whereas this would not meet the purpose for large enterprises, which need multiple measures for their performances, financial or non- financial.

“Also financial and non-financial performance measures are very important for large companies, while small companies need only one or two of financial measures such as sales and net income”. (Company A)

Respondents C and E notified that the impact of company size on performance measure practices is much bigger compared to that for budgets and cost practices.

“I think the most important effect of the size is its effect on the diversity usage of performance measures”. (Company C)

In addition, four interviewees (i.e. A, B, D and F) believe that company size has a significant impact on cost practices. They indicated that large company size means that the company might has many activities, departments, products and

businesses, and hence, the simplistic cost system often does not fit well. Therefore, more sophisticated cost systems, which accommodate all these divisions, would essentially be required. Equally, unsophisticated and traditional costing systems would be unlikely be sufficient for small companies.

“Larger companies usually have a broad communication network, larger diversify range of activities and service and customer diversityetc. This condition might make the need for more sophisticated costing systems”. (Company B)

“It is very normal that the cost system in large companies is more complicated than the cost systems in small companies”. (Company D)

Whilst, only two interviewees (i.e. I and J) confirmed that company size on its own is unlikely to have any impact on costing practices, however, the impact occurs when other factors associate with it. For instance, large companies usually have “diversity of products” for customers, an ambitious competitive strategy, many markets and different competition, etc, thus these factors influence on the cost system, and not on the size.

“There is no significant difference in the cost system between large and small companies, but other circumstances are having an impact; additionally, the large companies usually have the financial capacity to develop and adopt more sophisticated cost systems than small companies”. (Company J)

It seems from the above discussions, presented in Subsection 7.2.5, and from the interviews results that all types of MAPs can be affected by organisation size.

3. The Impact of Size of Company on MAPs in Company Specific Perspective

As indicated earlier, interviewees A, G and H confirmed that their companies intensively use budgets to cover all companies’ departmental expenses, as well as the activities, and all different functional areas and hierarchical levels in the company participate in preparing the budgets, and this is due to the size of the company.

“Due the large of size of the company the budget system in our company is very important, for planning and controlling, as it comprises most of our activities in including the detailed data about them”. (Company G)

Only one interviewee (i.e. G) demonstrated that his company uses multiple financial performance measures, such as return on investment and divisional profit, with some of non-financial performance measures: namely employees' satisfaction market share.

“The magnitude of investment in the company has necessitated the company to diversity the use of financial measures as well as some non-financial measures to assess the performance of the company”. (Company G)

In addition, two interviewees (i.e. A and G) indicated that company size has an effect on cost practices in their companies. They revealed that the reason behind use of sophisticated cost systems is the companies' sizes, they also described their cost system as they indicated earlier, there is a greater number of cost centres and cost drivers, which are based on different activity units.

“As I told you before our cost system divide each activity into many cost centers, and use many basics for allocation of cost”. (Company A)

These findings are, to some extent, consistent with the results derived from the hypothesis presented in Chapter 6, Section 6.3.5.

Furthermore, interviewees B, C, D, E and F believe that their companies do not respond to the effect of the size, whether in terms of budgets, costs, or performance measures. They provided various reasons, as indicated earlier, which include, lack of knowledge about MAPs (i.e. B, C), shortage of financial resource (i.e. E and F), new company (i.e. C and D), Lack of top management support (i.e. B, C and E).

4. General Perceptions of the Impact of Kind of Industry on MAPs

In this study, five interviewees (i.e. B, C, D, H and I) emphasised the role and importance of the type of industry for costing practices. Three out of five (i.e. B, C and D) revealed that manufacturing greatly rely on detailed variance information costing, whereas costs in non-manufacturing companies are mainly dependent on a discretionary nature.

“Manufacturing companies rely on actual cost to determine the cost of products, whereas non manufacturing companies rely on discretion”. (Company D)

On the other hand, interviewees H and I indicated that characteristics of cost system in manufacturing companies differ from those for non-manufacturing companies.

“For example, the cost of materials may be considered important in industrial companies because they represent a large amount of the total cost. Thus the cost system focuses on the practices that are related to the cost of materials, such as the optimal size of inventory, cost of the order and point of re-demand, etc. As for non-industrial companies, usually the cost of labor is higher than the cost of materials and thus we find these companies focus on cost of human resource”. (Company I)

The opinions of the above five interviewees are consistent with the descriptive results presented in Subsection 7.2.5, which indicate that kind of industry has a great impact on cost practices, with mean value of 3.47.

On the contrary, the remaining five interviewees believe that necessity, objectives and the impotent of cost practices in both manufacturing and non-manufacturing companies are similar. However, interviewee A stated that, in the Libyan context, the manufacturing companies are more familiarised with costing practices compared to non-manufacturing companies.

“Although in the Libyan environment the industrial sector applies costing practices more than the service sector, the need for such practices does not differ in the service sector than in the industrial sector”. (Company A)

On the other hand, only two interviewees (i.e. B and D) specified that type of industry is an important factor in applying budgets. They further declared that industrial companies are more concerned with achieving the objectives of the budget, while in servicing companies, the implementation of budgets always mar large deviations. This finding however, seems not being consistent with the descriptive results, which indicted that type of industry has a significant effect on budgets practices with a mean value of 3.24.

“Industrial companies usually have an integrated production plan based on the amount of products that the company wishes to put on the market next

year; so these budgets will reflect these plans, whereas, in service companies, the volume of services will be provided based on the request of the customers; as a result there is great difficulty in estimating the volume of demand on the service accuracy and this will reflect on the accuracy of budgets". (Company A)

Not even a single interviewee mentioned that the type of industry has any effect on performance measure practices; this outcome confirms the results stated in Section 6.4, which are derived from the questionnaire survey.

5. The Impact of Kind of Industry on MAPs in Company Specific Perspective

Only two interviewees (i.e. B and H) argued that kind of industry affects on cost system in their companies. In particular, interviewee H clearly stated that cost system in his company, as a non- manufacturing company, focuses more on cost of human resources and using direct labour cost as a basis for the allocation of indirect costs.

"Our system cost as (a service company) focuses its attention on the human cost and the cost of human resources such as the cost of training and the development and we use the direct labour cost as the basis for the allocation of indirect costs". (Company H)

Furthermore, interviewee B stated that the impact of industry kind in his company is apparent on the size of cost system, as result of multiplicity of purposes and objectives cost system.

"The impact of the type of industry is reflected on the magnitude of the cost system due to the broad of scope and function of it and I believe that service companies may not need this expansion in the use of cost systems". (Company B)

Whereas the remaining three interviewees (i.e. C, D and I) who believe that kind of industry has an important impact on cost practices, whilst, interviewees B and D, who believe that kind of industry has impact on budgets practices, demonstrated that MAPs in their companies have not been affected by kind of industry. These findings further support and clarify the outcomes derived from hypothesis H13.

6. General Perceptions of the Impact of Kind of Ownership on MAPs

The effect of kind of ownership on MAPs is another characteristic which was also discussed with interviewees. Most interviewees are from state-ownership companies, include (A, C, E, F, G, H and J), while other interviewees are from private ownership companies. Except for C, J and H, all interviewees mentioned that there is an effect of kind of ownership on MAPs. Four out of seven respondents (i.e. A, D, G and I) indicated that kind of ownership affect on all of the three types of MAPs; namely cost, budgets, and performance measure practices.

They stated that characteristic of accounting information, which is required in state-ownership companies; differ from that which is required for private ownership companies. For example, most of state-ownership companies, especially in Libya, were established for social and national purposes, such as creating job opportunities for unemployed people, providing domestic goods and services without reliance on import, etc; however, achieving competitive profits was not a priority for them. According to the interviewees, private ownership companies perform great effort to reduce the costs to the possible minimal. However, in case of state-ownership companies, they sometimes do not seek seriously to reduce some costs, though they are able to do so; such as reduce labour costs through demobilisation of excess labour or cut some benefits paid for labour.

“I see that the type of ownership is the most important factor that has an influence on the use of MAPs, because the information which is needed by the States in case of state- ownership is different from the information which is needed by owners in case of private-ownership ... for example, the state is not interested in maximizing profit as it focuses its attention an economic and social objectives such as improving the conditions of employees, whereas in private companies the achievement the profit comes in primarily and foremost, and this makes the company expand the use of MAPs”.
(Company F)

According to some interviewees (i.e. B, E and F), the kind of ownership has mainly affect on performance measures. The state-ownership companies do not care much about financial performance especially return on investment and net

income rather than social economic performance such as elimination of unemployment and the development of various economic sectors and self-sufficiency and dispensing on the import. Even though private ownership companies mainly concern with financial performance, however they sometimes concern with non-financial performance; such as market share, and customer satisfaction, yet, the ultimate goal is financial performance.

Interviewee E also revealed that the impact of shortage in cost and performance measures can reflect on budgets practices. The objective behind preparing budgets in state-ownership companies is not only for internal purposes but also for state agencies requirements to estimate the needs of the state-owned enterprises. Consequently, instead of putting forward reasonable estimates, these companies sometimes overprice budget components for different particular reasons.

“The performance measures in public companies are different from those in private companies. Public companies are more interested in non-financial measures such as the elimination of unemployment and the development of the various economic sectors, etc, while in the private sector companies are primarily interested in profits and even non-financial elements of interest are only to achieve their financial goals. This is also reflected on the objectives of cost and budgets practices”. (Company E)

To sum up, the results of this part of interviews are partially consistent with the questionnaire survey (see subsection 7.2.5), in terms of the impact of kind of ownership on budgets and performance measure practices.

7. The Impact of Kind of Ownership on MAPs in Company Specific Perspective

Referred to the interview results, interviewees E and F openly indicated that achievement of profit in their companies had not been a priority in their companies prior to the economic transformation that began with the end of the last century. Therefore, their companies had not sought to reduce costs; hence, their cost system been very simple, and it was not aiming for controlling the cost. The interviewees also revealed that at the present, this system is no longer appropriate for their companies, which are still state-ownership, due to the change taken place in their business environment. However, there has not been any changes occurred

in cost system in their companies based on their statements, due to the shortage of financial resource and lack of top management support.

“Before the economic transformation that has occurred at the end of the last century the achievement of high profits was not a priority for the company but they did not want to incur losses as well. The primary objective of the system costs is to determine the selling prices and not the controlling costs in order to improve profits”. (Company F)

In a different dialogue, interviewees A and G exposed that kind of ownership has no effect on cost practices, they further explained that their cost systems is quite sophisticated, despite their companies are state-ownership, as result of the impact of other factors; such as external environment and business strategy which have stronger effect on MAPs.

“As mentioned before the our cost system is to a certain extent sophisticated, and the impact of the kind of ownership on cost system does not appear due to the influence of other factors such as external environment and business strategy”. (Company A)

Equally, interviewee B also expressed that kind of ownership has not affected on MAPs in his company. Although as he indicated, his company was state-ownership but it has become a private-ownership, its MAS either cost, budgets or performance measures system have not been changed. The interviewee also added that one possible reason for that which is the company might need more time to show any change.

“The company was state- ownership and it became private- ownership, but in spite of this MAS, have not changed. Perhaps the reason for this is that the period is very short and needs some time to make changes”. (Company A)

Moreover, interviewees D and I restated by similar statements addressed earlier that their companies are relatively new established, and still under construction. Hence, all their systems, including MAS, are still in the process of incorporation and development. Therefore, those interviewees believe that it is too early for them to make a projection on what are the factors that would have affected on MAPs in their companies.

“....our company is still new and most of MAS are still under consideration” (Company I)

However, these findings do not support the hypothesis (H14) results which indicated that kind of ownership has impact on both cost and budgets practices. On the other hand, both, the interviews and hypothesis results (see subsection 6.3.5, hypothesis H14) emphasised that performance practices have not been influenced by kind of ownership in Libyan companies.

7.4 Summary and Conclusion

This chapter summarises the findings and the discussions derived from both the survey questionnaire and interviews, to investigate the participants’ perceptions on the relationship between certain contingent factors and MAPs.

According to the questionnaire respondents’ point of view, most contingent factors and their dimensions have affected on MAPs including cost, budgets and performance measurement practices. However, several dimensions (variables) have been perceived that they do not have strong effects on MAPs or one of its types. Moreover, these dimensions produce complexity on performance measure practices, customisation on budgets and performance measure practices, age of organisation on cost and performance measure practices, type of industry on performance measures and type of ownership on budgets practices.

With regard to the interviews, the majority of interviewees revealed that most the given contingent variables have significant effect on MAPs in general, which is consistent with concept of contingency theory and theoretical literature. However, in Libyan context, the majority of the respondents believed that the variables of external environment factors have not affected on MAPs Libyan companies. It implies that MAPs in Libyan companies have not been designed in response to the requirements of external environment. In this context, the interviewees cited several reasons in for not adopting the MAPs that fit with the business environment. Those reasons can be divided into two categories; first category refers to the inability to redesign MAPs suitable to be fit with contingent factors (e.g. lack of knowledge about MAPs, shortage of financial resource and the

company was new established), and second category refers to unwillingness to redesign MAPs which are lack of top management support, the absence the culture of using MAPs and fear of change.

Finally, based on finding of this Chapter and previous Chapter, can be concluded that contingency theory alone may not be suitable for the interpretation and demonstration of the adoption and use of MAPs, it is better if a hybrid between the two theories is used (i.e. diffusion theory and contingency theory). Diffusion theory explains the stimulating or inhibiting factors for adoption of MAPs, such as the factors that were cited by the interviewees (e.g. support of top management, knowledge about MAPs), while contingency theory explains factors that make these MAPs useful after they are adopted, based on the concept of fit, because some MAPs may be rejected after being adopted as they do not fit the organization's circumstances, while other MAPs receive acceptance.

Chapter Eight

Conclusions

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8.1 Introduction

The current study presents a detailed and comprehensive view of the adoption and purposes of adoption of various MAPs in Libya, an economy in which limited prior management accounting research has occurred. It employs a contingency theory approach in an attempt to provide a better understanding of MAPs through investigating the relationships between contingent factors, namely external environment, business strategy, organisational structure, production technology and characteristics of organisations, and various attributes of MAPs, namely cost, budgets and performance measure practices. This study is a pioneer to include a large set of contextual variables (i.e. 14 variables) of each of five contingent factors. The benefit of examining the impact of a large number of contextual variables rather than a limited number, as has been the case in most previous MAPs contingency research, is that it gives a comprehensive view of these relationships.

In addition, the study has used the two approaches of fit (i.e. the congruence approach and the contingency approach) to investigate the relationship among contextual variables, MAPs and organisational effectiveness. Thus, adopting two approaches of fit, as recommended in the contingency literature (such as Drazin & Van de Ven, 1985; Umanath, 2003; Venkatraman, 1989) will lead to complementary results and give a clearer picture of the relationship among contextual variables, organisational structure and organisational performance than a single approach (Drazin & Van de Ven, 1985). Firstly, this study uses a congruence approach of fit to examine a direct relationship between contextual variables and MAPs without testing organisational performance, and does not indicate the causal impact of context on MAPs. This was only to recognise the contextual factors which influence MAPs, and explore the character of the context of relations between the context-MAPs without investigating whether performance had been affected. Secondly, the contingency approach of fit has been used to indicate these differences in performance regarding the interaction effects between the context and MAPS, and to illustrate that higher performance is associated with a higher level of fit and vice versa. As indicated in Chapter Two

(section 2.6), interaction form of fit can be classified into two models (i.e. the moderation model and the mediation model). The moderation model adopts the idea of explanation/expectation difference in a dependent variable (organisational performance in this study) in terms of co-variation between the independent variables (contextual variables) and the moderator variables (MAPs) (Umanath, 2003). However, the traditional objection to the moderation form is the alleged problem that the hypothesis of independence between contingent variables, such as strategy and size of organisation and MAPs (as moderator variable), is incorrect. Consequently, the claim that a new impact arises as a result of the interaction between contingent variables and MAPs as a key assumption of this form is incorrect. Therefore, the alternative model, the mediation model, has been used in this study. In addition, the mediation model was thought to be more consistent with the objectives of the study than the first model, because the implication in the functions of this model is that, for example, higher hostility, heterogeneity and/or dynamism of external environment will lead to using broad MAPs, and the use of broad MAPs will result in higher organisational performance. Thus, the usefulness of MAPs is seen to have an intervening (indirect) effect, as the contextual variables do not have a direct impact on organisational performance, but the contextual variables influence the usefulness of MAPs and the usefulness of MAPs in turn influences organisational performance.

As was pointed out earlier in Chapter One, the major objectives of the research are as follows:

1. To determine what MAPs currently exist in Libyan companies.
2. To determine the purposes of MAPs usage in Libyan companies and the level of satisfaction with them.
3. To examine the relationship between contingent factors and MAPs in Libyan companies.
4. To examine the relationship between contingent variables and organisational performance through MAPs in Libyan companies.

5. To investigate management accountants' perceptions of the relationship between contingent factors and MAPs.

To achieve the study objectives, an extensive review of the relevant theoretical and empirical literature was undertaken (see Chapters Two and Three). This review has been utilised to build a theoretical framework to help identify the factors that may influence the adoption of MAPs in Libyan companies. A cross-sectional survey employing a questionnaire method was adopted, targeting Libyan companies. Data was collected from 135 companies; but after data screening, the sample size retained for data analysis was 123. To supplement the quantitative data, ten interviews were carried out to gain more understanding about the research issues (see Chapter Seven). For the purposes of analysis, the research utilised descriptive statistics (e.g. means and percentage) for analysing the data related to the first two research objectives (see Chapter Five), and used advanced statistical techniques such as simple regression, hierarchical regression and mediation regression to analyse the data related to the third and fourth research objectives (see Chapter Six). Finally, content analysis was used to analyse the interviews (see Chapter Seven).

The next section summarises and discusses the major results deriving from the descriptive statistics, regression techniques and interviews analysis. The followed section presents the study's contributions. The final section identifies the limitations of this research, followed by suggested future research directions.

8.2 Summary and Discussion of the Survey Findings

This section highlights the main research results that emerged in Chapters Five, Six and Seven. These results are discussed in the context of relevant literature and how they relate to the research objectives.

8.2.1 The Findings of the Descriptive Statistics

This study has investigated the state of management accounting techniques/practices within a sample of 123 companies in Libya. The study has examined the use of selected traditional and contemporary management

accounting techniques/practices, the purposes of these techniques/practices, and management accounting change in Libyan companies.

8.2.1.1 The Use of MAPs

As mentioned in Chapter One, this has been an exploratory study to investigate the state of MAPs within Libyan companies. The collected data were analysed using descriptive statistical analyses; results are reported in Chapter Five. This sub-section outlines the key results of the use of MAPs in Libyan companies in terms of cost, budgets and performance measure practices. Initially, it is noteworthy to point out that the results indicate that most of the highly adopted practices are perceived as most effectively meeting the needs of the company, whether cost, budgets and performance measure practices.

1. Cost Practices

Although the current study's results reveal that the rate of use of cost practices in Libyan companies is relatively low compared to those reported in other countries (e.g. Australia, Japan and India), these results are consistent with previous studies regarding which costing practices are commonly used and which are not (such as Chenhall & Langfield-Smith, 1998b; Joshi, 2001; Szychta, 2002; Wijewardena & De Zoysa, 1999). For example, as expected, traditional cost practices have been used more than contemporary practices, with no more than 20% of Libyan companies using contemporary practices. Moreover, the use of full costing is more common as a traditional cost practice than the use of variable costing and standard costing. These results are similar to those reported in previous studies conducted in Australian and Japanese contexts. In this context, Ahmed and Scapens (1991) argue that the wide use of full costing is due to the demand for companies by law to allocate their costs based on their products for determining their products prices. Even though traditional cost practices are commonly used in Libyan companies, these are confined to full and variable costing practices only.

A possible explanation is that Libyan companies are mostly dependent on budgeting practices for control and performance evaluation, rather than cost practices, as the budgeting practices are widely used.

2. Budget Practices

The findings of this study indicates that almost of all Libyan companies use the traditional incremental method for preparing budgets, and the disappointing use of zero-based budgeting and activity-based budgeting. Previous empirical studies confirm the popularity of the traditional incremental method, whether in developed countries (Abdel-Kader & Luther, 2008; Chenhall & Langfield-Smith, 1998b; Szychta, 2002) or developing countries (Joshi, 2001).

The results show that most Libyan companies are familiar with the use of the majority of budgeting practices, which are much widely used than costing practices. However, these findings indicate that the use of budgeting practices was relatively low compared to the reported results in earlier studies in both developed and developing countries, as in Puxty and Lyall (1989), Drury *et al.* (1993), Chenhall and Langfield-Smith (1998b), Alebaishi (1998), Al-Khater (1999) and Joshi (2001). Therefore, it also can be concluded that both earlier and current studies confirm that the majority of budgeting practices are most popular MAPs (Alebaishi, 1998; Chenhall & Langfield-Smith, 1998b). In this context, Drury *et al.* (1993) state that sales budgeting is likely to be the most important annual budgeting.

3. Performance Measurement Practices

The study employs both financial and non-financial practices for indicating to what extent the Libyan companies use financial and non-financial performance measurements. The results referring to the use of entire community performance category (financial and non-financial) are low; however, the two most commonly used practices are financial performance measurement practices. Similarly, Leftesi (2008) reveals that these practices are not relatively common in Libyan manufacturing companies. In contrast, these results are inconsistent with those of

previous studies conducted in both developed and developing countries, such as Australia, the UK and India (Chenhall & Langfield-Smith, 1998b; Drury et al., 1993; Joshi, 2001). As mentioned earlier, the findings imply that Libyan companies do not rely on performance measurements; instead, they may employ a range of other techniques such as budget practices to ensure the accuracy and validity of their performance. Moreover, the findings do not, therefore, support the recommendations suggested by several researchers (e.g. Banker et al., 2000; Ittner & Larcker, 1998a; Kaplan & Norton, 1992; Otley, 2001; Rappaport & Nodine, 1999) to adopt financial and non-financial performance measurements to ensure success in all forms for the organisation.

8.2.1.2 The Purposes of MAPs

This study also investigates the purposes of MAPs within Libyan companies, to identify the underlying dimensions of MAPs' purposes of use. Three lists (i.e. one for each MAPs aspect) were developed by this study using the task of MAPs that have been offered by the literature of management accounting (Drury, 2008; Innes & Mitchell, 1995; Innes et al., 2000; Schoute, 2009). Although these lists include many major purposes for which companies use their MAPs, it is not comprehensive, nor is any other list. The collected data were analysed using descriptive statistical analyses; results are reported in Chapter Five. This subsection outlines the key results of the purposes of MAPs used in Libyan companies in terms of cost, budget and performance measure practices.

1. The Purposes of Cost Practices

It has been emphasised that cost practices are adopted to generate relevant information for strategic purposes, involving product planning, such as product pricing, and for managerial purposes, such as cost reduction and performance measurement (Chenhall, 2005; Kaplan & Cooper, 1998; Player & Keys, 1995). However, the results show that the most important purposes of cost practices are determining products/services costs, budget preparation and valuing inventory for external reporting. Earlier in Chapter Five, it indicates that full and variable costing practice are commonly used in Libyan companies, which likely means that

these practices (i.e. full and variable costing) are used for these purposes. This confirms Ahmed and Scapens's (1991) argument, which claims that the wide use of full costing is due to the demand for companies by law to allocate their costs based on their products for determining their products prices. In addition, the order of these purposes in this study and Schoute's study (2009) is to some extent similar; for example, the second most important purpose is budget preparation in both studies, while the third most important is stock valuation, and in both studies the performance measurement purposes were the lowest usage rating.

The results also indicate the low level of respondents' satisfaction with all of the nine purposes; the highest satisfaction rating was for the use of the cost system for determining products/services costs, which had a mean value of just over 3 (i.e. 3.01). The mean values for the other purposes ranged between 3 and 2.3, which means that the level of respondents' satisfaction is low. This might be inferred from the low usage of the cost system for each the nine purposes.

2. The Purposes of Budget Practices

Budget practices are minimally used for most of the nine listed purposes in Libyan companies, implying that the purposes of budgets in Libyan companies do not seem as meaningful as in most previous studies (Chenhall & Langfield-Smith, 1998a; Joshi, 2001; Tsamenyi et al., 2004). Moreover, there is a paradox between these results and the results regarding the use of budget practices, because the means of usage range from 3.79 to 4.30, and all of them are above 3, except for flexible budget (Table 5.9). This is likely due to the fact that most Libyan respondent companies are obliged to prepare those budgets by law, especially Libyan state-owned companies, and they are not interested in using them to support day-to-day operating decisions. Thus, most previous studies reported that purposes of budgets were more important than the present study (Chenhall & Langfield-Smith, 1998b; Joshi, 2001; Tsamenyi et al., 2004). On the other hand, the findings of this study are consistent with previous studies related to purposes order, since the most important purposes of budgets are planning and control in both Chenhall and Langfield-Smith (1998b) and Tsamenyi *et al.* (2004).

Therefore, the respondents' satisfaction level of the budget techniques for each listed purpose is very low, ranging between 2.94 – 2.36.

3. Purposes of Performance Measurement Practices

The results presented in Chapter Five emphasise the low use of performance measurement practices for the ten purposes, which confirms the earlier results that Libyan companies are not familiar with the use of performance measurement practices. In addition, the results report low levels of respondent satisfaction with the role of performance measurement practices in terms of these purposes. This dissatisfaction may be due to the low use of performance measurement practices, and is not similar to Ittner, Larcker and Randall (2003) and Ittner and Larcker (1998a), who found greater satisfaction in companies using a broad set of financial and non-financial measures.

8.2.1.3 Management Accounting Change

The findings in this study also provide some analytical results regarding novel typology and patterns of MA change within Libyan companies, and the success level of these changes. This study has categorised MAS changes into five different types, which may aid analysis of change sensitivity. These are: addition, replacement, output modification, operational modification and reduction. The results indicate that all dimensions of MA changes in Libyan companies are not pervasive phenomena. However, most of the few changes that occurred were highly successful.

8.2.2 Effect of Contingent Factors on MAPs

It was found that there are some relationships between contingent variables and MAPs, especially budget practices. However, it has been noted that costing practices were not affected by any contingent variables except three: hostility of external environment, formalisation and company ownership. Furthermore, the three variables of external environment (i.e. dynamism, heterogeneity and hostility) did not have a statistically significant impact on any type of MAPs,

except the hostility variables, which affected cost practices. Apart from that, there are some statistically significant relationships.

In line with expectations, there are significant relationships between three kinds of strategic typology (i.e. Miles and Snow typology (1978), Porter typology (1980) and Govindarajan and Gupta typology (1985), and two groups of MAPs, namely budget practices and performance practices. The findings indicate that the more emphasis is placed on building, differentiation and prospector strategies, the more focus there is on the usefulness of budget practices, performance measure practices and MAPs overall. Although the results of this study do not quite resemble the results of previous studies, the current results are to an extent in line with the work of Govindarajan and Gupta (1985), who reported that non-financial measures, such as new product development, market share and customer satisfaction, have been greatly emphasised by companies following a build strategy. Similarly, they are consistent with those of prior research findings by Abernethy and Lillis (1995), Ittner and Larcker (1997), Pereira *et al.* (1997) and Baines and Langfield-Smith (2003), demonstrating that an organisation following differentiation strategy could require more sophisticated MAS, specifically the use of a broad set of financial measures and non-financial measures. Also, the current results are consistent with the previous research of Abernethy and Guthrie (1994), Guilding (1999), Jusoh *et al.* (2006), and Cadez and Guilding (2008), which found a positive relationship between pursuing prospector strategy and the use of broad scope MAS and contemporary MAPs, such as non-financial measures.

It was shown in Chapter Six (subsection 6.3.3) that centralisation did not have any impact on any type of MAPs, whereas formalisation had an impact on both cost and budget practices. However, these results of no significant relationship between centralisation and MAPs' usefulness are similar to Gordon and Narayanan's (1984) results, which report that an organisation's information system and structure are not significantly related to each other. Similarly, Chenhall and Morris's (1986) results show that scope and timely information were not significantly associated with decentralisation.

In addition, it was pointed out in Chapter Six that only product complexity as a dimension of production technology factor had an effect on MAPs usefulness, especially on the usefulness of budgets and performance measurement practices. While no significant relationship between customisation and any of aspect of MAPs usefulness was found. With respect to the effect of product complexity, this result is supported by Krumwiede (1998), who found that complexity is positively associated with the decision to implement ABC and indicative of a sophisticated MAS.

Regarding characteristics of organisation factors as illustrated earlier (Chapter 2, section 3.7), the studies based on contingency theory examining the impact of characteristics of organisation are very limited (Dent & Ezzamel, 1987; Ezzamel, 1987). Dent and Ezzamel (1987) argue that literature on the contingency theory of management accounting has largely neglected the impact of company age. The questionnaire results reveal that the size of company had a positive impact on budgets, performance measurement practices usefulness and on the usefulness of MAPs overall, and company ownership also had an impact on costing, budget practices and MAPs overall, while the age of a company and kind of industry did not have a significant impact on any type of MAPs. These results are consistent with those of Abdel-Kader and Luther (2008) and King *et al.* (2010). Moreover, the literature confirms that the size of an organisation is considered the main predicting variable in organisational control; large organisations require more management and evaluation of their activities and performance than small ones (Chenhall & Langfield-Smith, 1998a; Child, 1973; Upchurch, 2002). In addition, many researchers emphasise that type of ownership is positively associated with type of business sector (Al-Omiri & Drury, 2007; Drury, 2008; Scapens & Yan, 1993). A possible reason for this is that organisations under government ownership focus on different objectives than those with private ownership. For example, the priority of privately owned companies is maximising their profit and managing their costs, while companies with government ownership may have other goals, such as addressing social problems. This implies that private companies should be more interested in using MAPs in order to accomplish their targets.

On the other hand, there is no clear evidence that the age of an organisation is a contingent variable for MAS, which means that a young organisation will require different MAPs than an old one; however, an old organisation may be more familiar with the most common MAPs than young organisations. In this context, Firth (1996) finds that company age in China did have an impact on MAS; he explains that the effect of age may be during the early years of the company. Finally, the results related to the lack of an effect of kind of industry are not consistent with Drury's (2008) argument that control systems differ according to kind of industry.

8.2.3 Intervening Role of MAPs between Contingent Variables and Organisational performance

The mediator role of MAPs has been explored based on an interaction approach via mediation regression analysis. This study attempts to investigate the intervening role of MAPs on the linkages between contingent variables with a significant direct effect on MAPs and organisational performance. This implies that the impact of MAPs acts as an intervening construct between contingent variables and organisational performance.

A hostile environment, which was found to have an impact on costing practices usefulness, was examined to see if it has an indirect effect on organisational performance through costing practices usefulness. The results show that there is no indirect effect of hostile environment, which means that costing practices usefulness did not have an intervening role in the relationship between dynamic environment and costing practices usefulness, despite the direct relationship existing between them, which involves that costing practices usefulness was not an important antecedent of organisational performance. This result is consistent with Soobaroyen and Poorundersing's (2008) study, which examines the indirect effect of PEU on managerial performance through the extent of use of broad scope MAS information.

It was found that budget usefulness mediates the relationship between the strategic missions of Gupta and Govindarajan, the strategic priorities of Porter, the typology of Miles and Snow, and organisational performance. Meanwhile,

performance measurements practices only mediate the relationship between the strategic missions of Gupta and Govindarajan, the strategic priorities of Porter, and organisational performance. However, it denotes that these strategies have no direct effect on organisational performance. The results are consistent with Chong and Chong (1997), who adopted Miles and Snow's (1978) strategic typology confirming the importance of strategy as an antecedent of MAS design, and the importance of MAS information as an antecedent of SBU performance.

As shown in Chapter Six, the statistical test demonstrates the existence of an indirect relationship between formalisation and organisational performance via both costing and budgeting practices. This means that the clear specified work rules and a well-defined, strict purpose are effective through the extent of cost and budgeting practices usefulness. Interestingly, the direct effect of formalisation on organisational performance is not significant, but it affects the extent of cost and budgeting practices usefulness.

In addition, Chapter Six illustrates that that the extent to which the uses of budgeting and performance measure practices play a role in making product complexity contributes to organisational performance. Because, as indicated earlier, there is no direct effect of product complexity on organisational performance, this implies that product complexity works or benefits with the extent of use of budgeting and performance measure practices in influencing organisational performance.

With respect to the indirect effect of organisation characteristics, company size and kind of ownership were found to have a direct effect on MAPs. It was found that company size did not have an indirect effect on organisational performance either, by using the extent of budgets and performance measurements practices usefulness; however, the MAPs overall did have effect. Kind of ownership had a significant indirect effect on organisational performance through the extent of usage of cost, budget practices and MAPs overall.

As indicated earlier several times, the literature of the contingency theory of management accounting shows a limited number of studies that examine the effect

of organisation characteristics on management accounting, in particular any that examine the effect of kind of ownership. Additionally, the majority of these studies focus on the direct relationship congruency approach (Abdel-Kader & Luther, 2008; Al-Omiri & Drury, 2007; Hoque et al., 2001; Libby & Waterhouse, 1996). Therefore, it is not possible to compare these results with previous empirical studies.

8.3 Summary and Discussion of the Interviews Findings

With regard to the interviews, three environmental dimensions can be inferred: dynamic dimension (changeability and predictability), heterogeneous dimension (complexity) and hostile dimension (the scarcity of resources and the degree of competition) (Duncan, 1972; Khandwalla, 1972; Teo & King, 1997). These three attributes of the external environment are likely to have substantial impacts on management accounting design/practices (Chapman, 1997; Daft, 1992; Gordon & Miller, 1976). This argument has been supported by almost all the interviewees; they also believe that the external environment has a significant positive impact on MAPs in general. The interviewees emphasised that MAPs play an important role in dealing with dynamic, heterogeneous and hostile environment, to overcome the environmental uncertainty problem that may be associated with these environments. Therefore, both the literature and the interviewees agree that the external environment makes managerial planning, control and performance measurement more difficult, depending on the unpredictability of the future event, and management accounting may play an important role in all the levels of uncertainty encountered. Nevertheless, there is no consensus among the interviewees in terms of which types of MAPs are more affected by the external environment than others; however, one-half of the interviewees revealed that it is very difficult to determine which one may be affected more than others, as they find these practices are highly interrelated. In addition, both the interview and questionnaire results revealed that MAPs in Libyan companies have not been affected by their external environments. However, the interviewees claimed that there have been significant changes in these environments, and MAPs change was needed, but that there were several reasons behind the lack of MAPs change, such

as a lack of top management support, a shortage of financial resources and a lack of knowledge about MAPs.

Most of the interviewees (i.e. 6 out of 10) agreed that business strategy has a significant impact on MAPs, and that the build, differentiation and prospector strategy requires more sophisticated MAS and broad and accurate accounting information for planning, control and performance measurement. This is consistent with questionnaire survey analysis (hypothesis test) and prior research results (Abernethy & Lillis, 1995; Baines & Langfield-Smith, 2003; Guilding, 1999; Innes & Mitchell, 1997; Perera & Poole, 1997). However, some interviewees (four interviewees) indicated that all kinds of business strategies required broad and accurate accounting information for planning, control and performance measurement. On the other hand, in a Libyan context there is consensus among interviewees over whether business strategy had an impact on MAPs in their companies.

The term organisational structure is considered to be an important aspect of management control that influences the internal context; however, only a few studies have concerned the fit between organisational structure and MAPs (Chenhall, 2003). The interviews provide two different views about the impact of centralisation on MAPs; one half of the interviewees believe that centralisation has not impacted on MAPs, whereas the second half emphasise the impact of centralisation. The first view supports the results obtained from the questionnaire survey analysis, and results revealed by Chenhall & Morris's (1986) study, that scope and timely information were not significantly associated with decentralisation. While most of the interviewees (i.e. 6 out of 10) revealed that formalisation has an impact on MAPs, some of the respondents argued that MAPs in formalised companies are very important, as these MAPs are one of the formal procedures that should be implemented and followed. In a Libyan context, the majority of interviewees indicated that centralisation has no impact on MAPs in their companies. Whilst four interviewees confirmed that the design of MAPs in their companies responded to their level of formalisation, some of them revealed

that formalisation in their companies might be one reason for using sophisticated MAPs.

Otley (1980) argues that the technology factor thus has an important effect on the type of accounting information that can be provided, and more recent work has distinguished different aspects of technology that have an effect on the information that should be provided for effective performance. All interviewees had the same opinion that product complexity affects MAPs, practically on cost practice and budgets practice. They emphasised that high product complexity requires a sophisticated cost system, which allows for multiple cost drivers to represent different features of each product's composition. Furthermore, it was revealed in interviews that differences in consumption among all identifiable activities relating to product design, manufacture and distribution batch sizes would positively affect the number and types of budget, the degree of detail, and the degree of accuracy and importance in controlling and determining of responsibility. In addition, all interviewees confirmed that the degree of customisation has an impact only on cost practices; whereas one half of them exposed that a sophisticated costing system, as the detailed tracking of costs is required for determining selling prices. Conversely, other respondents had opposite views; they stated that sophisticated costing systems are quite adequate in standardised companies, as they are larger and operate in local and global competition, and their products selling are a price taker.

On the other hand, in Libyan companies, most interviewees admitted that product complexity has not had any impact on MAPs in their companies. However, this result was not consistent with the results derived from questionnaire survey analysis. Both interview findings and survey results were consistent in terms of MAPs in Libyan companies not having been influenced by customisation.

The interview findings, survey results and management accounting literature indicate that organisation size has a significant impact on the MAS. Otley (1987) states that the impact of size has an impact on the MAS, but it perhaps exerts most of its influence indirectly, through organisation structure. In an Indian context, Joshi (2001) reports the effect of size on the adoption of the newly developed

practices. Child (1973) argues that size is the main variable in predicting organisational control strategies; additionally, large organisations need more management and evaluation of their activities and performance because a larger organisation requires an increased amount of activities, quantities of information, decentralisation of departments, and a great amount of documentation. Recently, Abdel-Kader & Luther (2008) concluded that differences in MA sophistication are significantly explained by size. The interviews emphasised the impact of company size, but by varying degrees; for example, six thought that size has a primary effect on budget practices, while only four interviewees emphasised the impact of company size on performance measure practices, which might be adequate for small enterprises, using only one or two traditional financial performance measures. This, however, does not meet the purpose for large enterprises, which need multiple measures of their performance, whether financial or non-financial. In addition, four interviewees believe that company size has an impact on cost practices, as large organisations have many activities, departments, products and businesses, hence the simplistic cost system often does not fit well.

Interview findings confirmed the results of Dent & Ezzamel (1987), who investigated the relationship between age of organisations and the degree of sophisticated of MAS, but such a relationship was not found. In addition, the majority of interviewees mentioned that there is an effect of kind of ownership on MAPs; they explain that the purposes and priorities of state-ownership are different from those of private ownership, and this reflects on all types of MAPs. This is consistent with results reported by Scapens and Yan (1993), who find that government ownership of Chinese enterprises is one of the key restrictions upon Chinese MAPs, establishing a negative relationship between government ownership and accounting information systems. Similarly, some interviewees emphasised that type of industry is one contingent variable for cost practices; for example, three of them revealed that manufacturing companies greatly rely on detailed variance information costing. Conversely, only a few of the interviewees believed that kind of ownership has an effect on performance measure practices, because state-owned companies do not focus on financial performance rather than social economic performance. Drury (2008) claims that manufacturing

organisations tend to have more formal control systems, while non-manufacturing organisations are likely to sometimes rely on informal control systems and discretionary nature.

Only a few interviewees confirmed that MAPs in their companies are affected by characteristics of the organisation; namely, age of company, company size, type of industry and type of ownership, which is somewhat different from the hypothesised results regarding company size and type of ownership, which were found have a direct effect on MAPs.

8.4 Contributions of the Research

The main contributions of this study are as follows:

- Although the study of MAS based on contingency theory is not a new endeavour, this research contributes to the body of knowledge in using a unique research framework; this framework relies mainly on two things.
 - Firstly, using unique contingent factors as one of the advantages of the study. For example, the external environment has been investigated in this study according to its dynamism, heterogeneity and hostility, as recommended by Khandawalla (1972); whereas as indicated in the literature review in Chapter Three no previous studies have used these three dimensions. Most previous studies focus on a broad external environment to primarily represent the level of uncertainty resulting from many other external variables, such as economic or political variables, or from specifications and characteristics of the external environment, such as the dynamism, heterogeneity and hostility of the external environment. Therefore, this study contributes to knowledge by giving a more in-depth understanding of the relationship between different dimensions of the external environment (i.e. dynamism, heterogeneity and hostility) with different aspects of MAPs (i.e. cost, budgets and measurement performance), and distinction between the impact of

these three types of environment. In other words, this study has designed a framework which has been able to provide a better explanation of the research problem, by examining the effect of each dimension of the external environment on each aspect of MAPs and organisational performance via aspects of MAPs. In terms of business strategy, three kinds of strategic typologies – the strategic typologies of Miles and Snow (1978), the strategic priorities of Porter (1980) and the strategic missions of Gupta and Govindarajan (1984) – have been included in the current study. No previous research has been undertaken using these three strategy types simultaneously to compare them in terms of their effect on MAS, to indicate which is more important for MAS design. Moreover, most previous studies are concerned with Miles and Snow's (1978) typology, Porter's (1980) positioning and other strategies, such as customer-focused strategies, which are considered as one dimension of differentiation strategy, while there is a dearth of studies that adopt the strategic mission of Gupta and Govindarajan (1984).

- Secondly, most previous studies examine the characteristics of MAPs information or performance measures, or the adoption of advanced MAPs such as ABC or BSC, while a few examine a broad range of MAPs, such as Chenhall and Langfield-Smith (1998a) and Abdel-Kader and Luther (2008). In addition to using a broad range of MAPs, this study also divides these practices into three groups: cost, budget and performance measure practices. No previous research based on contingency theory has taken into consideration this partition or considered the research from this angle. Therefore, by studying MAPs in this way, it was possible to discern individual impact various dimensions of external environment on various MAPs.

- Two forms of contingency fit have been adopted as the basis to develop the hypotheses that is congruency approach and a contingency approach, including a large number of contingent variables (14 variables); most previous research uses only one approach and a very limited number of contingent factors (variables). Therefore, this study contributes to the body of literature by conducting an in-depth study and investigating a multitude of variables that may affect the adoption of MAPs; and by providing a holistic view for exploring the character of the context of relations between contextual factors and MAPs with (contingency approach) and without (congruency approach) investigating whether the performance has been affected or not. In addition, the current study applies contingency theory as a mediation model to assess the intervening role of MAPs in the relationship between contingent factors and organisational performance. Furthermore, the contingency theory literature indicates that there is a misunderstanding of different approaches, forms and models of contingency theory, and that major researchers are not aware of the implications of these different approaches and the difficulties related to these approaches (Gerdin & Greve, 2004, 2008; Schoonhoven, 1981; Venkatraman, 1989). Therefore, most researchers have not found a strong basis for their chosen approach, nor have they given an appropriate interpretation of their findings. For example, researchers who choose the MAS as a moderator variable rather than mediator variable do not specify why they use this model, and vice versa. Hence, what they chose may not be valid, while this study sought to avoid these shortcomings through identifying the different approaches and models of contingency theory and trying to review the previous studies according to this basis in order to find a strong basis for the study and interpret its results appropriately. Therefore, another important contribution of this study to the body of knowledge is reflected in the understanding and absorbing of the implications of these different approaches and models and using them in interpreting the current study's results.

- According to the literature review done in Chapter Three, a very limited number of studies investigate the effect on MAPs of formalisation, product complexity, organisation size and type of industry variables. Moreover, none of them investigated these variables using the interaction form of contingency theory to examine how organisational performance is influenced by these variables. Therefore, one of the contributions of this study to the body of knowledge is an attempt to address how these individual variables and each MAPs group interact to explain organisational performance. In other words, this study focuses not only on understanding the correspondence between these variables and MAPs but also on the result of fit on organisational performance to illustrate that a higher performance is associated with a higher level of fit. In addition, none of the previous studies that were reviewed in Chapter Three investigated the impact of age and type of ownership of organisations on MAPs. Thus, this study seeks to fill this gap in the literature by explaining whether these two variables have important implications for MAPs sophistication from the contingency perspective.
- One of the motives for this study was the gap in MAPs literature in developing countries, as indicated earlier (see Chapter Three), as MAPs and the contingency theory literature were mainly based in developed countries; a limited number of studies have been conducted in developing countries. Therefore, the study adds to the limited body of knowledge of MAPs in developing countries, in particular North African countries, which are an emerging economy. It contributes to the inspiration and helps other researchers to identify whether there are differences in the relationship between contingent factors and MAPs between industrialised and developing countries. This is thought to have made a contribution to a broader understanding of these relationships in various other contexts, particularly in emerging economy countries, especially since some of the results of this study conflict with the results of previous studies conducted in developed countries. In this context, Shoib and Jones (2003) indicate that more research is required in developing countries due to today's

increasingly complex and interconnected world. This study extends the body of knowledge by designing and applying an appropriate contingency theory framework, in response to the recent calls by Jones (1985), (Gerdin, 2005) and Tillema (2005). Gaburro and O'Boyle (2003) argue that recently the growth of economic globalisation has been witnessed, which implies the performance of economic agents working in different countries and serving the world market without any prevailing national barriers. Therefore, studies in this part of the world need to be carried out and further research needs to be undertaken in these emerging and developing nations.

- The contingency perspective of the design of MAS is predicated upon the idea that there is no universally relevant accounting system that applies equally to all enterprises in all circumstances. It suggests that when the specific circumstances of an enterprise change, MAS should acclimatise if they are to remain effective (Clarke et al., 1999; Gerdin & Greve, 2004; Haldma & Laats, 2002; Hayes, 1977; Jones, 1985; Otley, 1980; Reid & Smith, 2000; Waterhouse & Tiessen, 1978). Therefore, one contribution of this study comes from the necessity of retrying to determine what are the main contingent variables affecting the adoption of MAPs so that any changes that occur in these identified variables will be monitored in order to find out how they would reflect on the MAPs of the companies.
- This study uses primary data, which were collected through survey and interviews, in responding to research questions and testing the hypotheses. Although some questions in the questionnaire were adapted and developed from prior researches, they were reorganised to conform to the research objectives, which means that no earlier research has applied this questionnaire and interview protocol. In addition, this study is distinct from many previous studies that only used a survey; that is, the results of the interviews were used to support and explain the results of the survey. In other words, this triangulation method will provide a better explanation of the relationship between contingent factors and MAPs. For example, the results of interviews showed that there are non-contingent variables (e.g.

lack of top management support and lack of knowledge about MAPs) that may obscure the impact of contingent variables; thus, this may explain the lack of influence of some contingent factors in the results of the questionnaire.

- Chapter Three presents a review of the existing literature in contingency-based MAS research, which covers five contingent factors, i.e. external environment, business strategy, organisational structure, technology and organisation characteristics. The literature was reviewed and discussed according to the criteria of this research (i.e. how the contingent factor was perceived and measured, how contingency theory was applied to investigate the factor, which MAS or part of MAS was examined, how the outcome was measured if it was included, and discussion of the results). This review contributes to the body of knowledge in classification of the existing literature of contingency-based MAS research based on the above five criteria. This will provide researchers with an insight for understanding of MAPs adoption according to the contingency perspective and future direction of this stream of research.

8.5 Limitations and Future Research

Like any research study, this research is also subject to a number of limitations that warrant further discussion. These limitations present opportunities for future research.

- It should be recognised that there are some limitations with respect to this research and interpreting its results. The results reflect the knowledge and interpretations of a single individual in the company regarding the condition of contingent factors, MAPs and techniques as well as organisational performance; however, arrangements were adopted to ensure that the respondent was suitably qualified to answer the questionnaire. In addition, short meetings took place where any responses were unclear.
- The main research instrument relied upon translation between English and Arabic languages. This may lead to misinterpretation or misunderstanding

of some expressions and practices, especially those which have not received much visibility in Libya. However, the process has been managed carefully and multi-frequencies consulting has been made (see Chapter Four, subsection 4.10.1) to avoid any potential ambiguity of terminology.

- This study has an advantage in that it was conducted across industries in Libya. Another concern should be addressed according to the data collected from companies of one industry or from companies listed on the Stock Market of Libya. This could offer a research opportunity to explore MAPs used by different industries and provide a basis for a comparative study of MAPs in Libya.
- The results from the regression analysis itself cannot be inferred from directionality; cause and effect relationships or directional associations between the variables cannot be assumed from the results, except the statement that the results are consistent with the hypotheses proposed in the study. Like all studies using cross-sectional methods (Agbejule & Burrowes, 2007), causality can be drawn from theory and literature as well as qualitative findings, particularly interview results. Despite the advantages of using these approaches, the causal relationships between variables should be treated with caution due to the cross-sectional methodology of this study. Therefore, words such as ‘impact’, ‘effect’ or ‘explain’ used throughout the study, which indicate causality, require careful interpretation. Future research will have good chance to investigate and evaluate the cause and effect relationships through longitudinal field research methods.
- This study attempted to present a detailed and comprehensive view of the adoption and purposes of adoption of various MAPs in Libya and employs a contingency theory approach in an attempt to provide a better understanding of three attributes of MAPs (i.e. cost, budgets and performance measure practices) through investigating the relationships between five contingent factors including a large set of contextual variables (i.e. 14 variables). Further research could address single contingent factors in greater detail with a series of highly complex

constructs in order to have a deeper understanding of the contingent relationships therein.

- In this research, two approaches of fit, congruence concurs and contingency, were used to provide empirical evidence of the effect of each selected contingent factor on the usefulness of MAPs and organisational performance, while the combined effect was beyond the interest of this study (holistic approach). Therefore, additional research is required to investigate this issue.
- This study based on contingency theory perspective, therefore as mentioned in last chapter that contingency theory alone may not be suitable for the interpretation and demonstration of the adoption and use of MAPs, it is better if a hybrid between the two theories is used (i.e. diffusion theory and contingency theory). Diffusion theory explains the stimulating or inhibiting factors for adoption of MAPs, such as the factors that were cited by the interviewees (e.g. support of top management, knowledge about MAPs), while contingency theory explains factors that make these MAPs useful after they are adopted, based on the concept of fit, because some MAPs may be rejected after being adopted as they do not fit the organization's circumstances, while other MAPs receive acceptance. Thus there is a great scope for future research to adopt this perspective.
- This study used a self-rating scale for organisational performance, which was subject to criticism for its objective, reliability or validity (Abernethy & Guthrie, 1994), but many recent MA researches (such as Baines & Langfield-Smith, 2003; Cadez & Guilding, 2008; Chenhall, 2005) have used the concept of multidimensionality. Therefore, further research could attempt to acquire objective measures or anchor responses against objective measures.
- Some contextual variables were not incorporated in the study, such as culture, managerial style and management technique. No detailed attention to this was possible for this research. Further research should pay more attention to the effect of these variables on MAPs in Libyan companies,

especially culture; it might be interesting to explore how cultural variables influence the use of different MAPs of Libyan companies. The use of case studies or even longitudinal case studies may be required to explore this issue in more detail.

- The results of this study showed no evidence of the use of so-called advanced MAPs, such as ABC and BSC, like many other developing countries. Future research should pay attention to the possibility of implementing such techniques in Libyan companies and other developing economies.
- Although the current study concerns three different MAPs; namely cost, budget and performance measure practices, anatomical and more detailed studies based on contingency theory are needed, using longitudinal case study-based research. These studies should also investigate in-depth adoption, motivations, momentums and change, as well as the barriers and obstacles to better understanding the change as an ongoing process rather than a static relationship.
- The study was conducted in the developing economy of Libya, which has witnessed an alteration from a centrally planned to a market-based system. Therefore, caution is required in generalising the results to other countries, and more research should be undertaken in other developing economies.

Despite these limitations, this study represents a most comprehensive survey and explanation of MAPs in Libyan companies and it contributes to our understanding of MAPs from a contingency perspective and identifies the impact of this relationship on organisation effectiveness.

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Appendix A Questionnaire Covering Letter

Dear Participant

I am Ph.D. student at the University of Huddersfield, UK, currently preparing my doctoral project on the

Influence of Business Environment on the Characteristics of Management Accounting Practices: Evidence from Libyan Companies”.

This research seeks to investigate the relationship between selected contingent factors and management accounting practices in Libyan companies. This aim cannot however be achieved without your and other respondents’ co-operation in completing the enclosed questionnaire. The questionnaire has been carefully designed for this study and is informed by current knowledge in this field, including recent empirical studies.

Please answer all the questions that are relevant to your company and make any additional comments using the space provided or additional sheets if necessary. If you feel you are not the right person to complete the questionnaire, please pass it on to the relevant person in your company.

I would like to reassure you that your response will be treated as strictly confidential and will only be used for the purposes of this research. It will not be disclosed to third parties under any circumstances

Should you need further information or clarification regarding this research study, please do not hesitate to contact me or my director of studies at the addresses below.

Thank you for your co-operation in completing this questionnaire.

Yours sincerely

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Appendix B Research Questionnaire

SECTION A: GENERAL INFORMATION ABOUT YOURSELF

For questions A1 to A3 below, please tick [√] all relevant answers.

A1. Job title and position	<input type="checkbox"/> Financial Manager	<input type="checkbox"/> Head of cost department	<input type="checkbox"/> Financial Accountant
	<input type="checkbox"/> Management Accountant	<input type="checkbox"/> Auditor	<input type="checkbox"/> Other please specify.....

A2. Experience:	Less than 5 year	5 - Less than 10 years	10 - Less than 15 years	15 or more
Post-qualification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In the current job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
With the current company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A3. Qualifications and subject speciaslim	<input type="checkbox"/> High school in <i>(please mention subject area):</i> <input type="checkbox"/> BA/BSc in <i>(please mention subject area):</i> <input type="checkbox"/> MA/MSc in <i>(please mention subject area):</i> <input type="checkbox"/> Ph.D. <i>(please mention subject area):</i> <input type="checkbox"/> Professional qualification <i>(please specify)</i> <input type="checkbox"/> Other <i>(please specify)</i>
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SECTION B: GENERAL INFORMATION ABOUT YOUR COMPANY

For questions B1 to B4 below, please tick [√] all relevant answers.

B1. Age of company:	<input type="checkbox"/> Less than 5 years	<input type="checkbox"/> 5- Less than 10 years	<input type="checkbox"/> 10- Less than 20 years	<input type="checkbox"/> 20 or more
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B2. Main industrial sector of your company			
<input type="checkbox"/> Manufacturing	<input type="checkbox"/> Retail trade	<input type="checkbox"/> Financial Services	<input type="checkbox"/> Oil and Gas
<input type="checkbox"/> Agricultural	<input type="checkbox"/> Transportation	<input type="checkbox"/> Construction	<input type="checkbox"/> Tourism
<input type="checkbox"/> Other <i>(please specify)</i>			

B3. Please provide approximate amounts for the following items relating to your company:				
Annual Sales Turnover: (in Libyan Dinars)	Less than one million <input type="checkbox"/>	1- Less than 5 millions <input type="checkbox"/>	5 - 10 millions <input type="checkbox"/>	More than 10 millions <input type="checkbox"/>

Number of Employees:	Less than 100	100-500 <input type="checkbox"/>	501-1500 <input type="checkbox"/>	More than 1500 <input type="checkbox"/>
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B4. Type of company ownership:			
State-owned company	<input type="checkbox"/>		
Private company	<input type="checkbox"/>		
Joint venture (shared between State and a foreign partner)	<input type="checkbox"/> please specify the percentage of State-owned%	
Joint venture (shared private sector and a foreign partner)	<input type="checkbox"/> please specify the percentage of private sector%	
Joint venture (shared between State and private sector)	<input type="checkbox"/> please specify the percentage of State-owned.	...%	

B5. COMPANY PERFORMANCE

Please indicate, using the 5-point scale below for each of the listed performance dimensions, how well you believe your company is currently performing relative to your main competitors:

Poor 1	Less than Average 2	Average 3	Good 4	Outstanding 5
Sales revenue			1 2 3 4 5	
Net income (i.e. profit)			1 2 3 4 5	
Net cash flow			1 2 3 4 5	
Return on investment			1 2 3 4 5	
Cost reduction			1 2 3 4 5	
Overall research and development			1 2 3 4 5	
Market share			1 2 3 4 5	
Customer satisfaction			1 2 3 4 5	
New market development			1 2 3 4 5	
New product development			1 2 3 4 5	
Personnel development			1 2 3 4 5	
Other (<i>please specify</i>)			1 2 3 4 5	

SECTION C: CHARACTERISTICS OF YOUR COMPANY’S BUSINESS ENVIRONMENT

Questions C1 to C3 below relate to the *external environment* of your company during the last 5 years. Using the 5-point scales below, please circle the appropriate number for each item listed.

C1. Extent of change in the company’s external environment				
Not changed at all 1	Slightly changed 2	Moderately changed 3	Changed 4	Significantly changed 5
Product/service technologies in your industry			1 2 3 4 5	
Competitors’ actions			1 2 3 4 5	
Demand for products/services			1 2 3 4 5	
Government regulations			1 2 3 4 5	
Labour unions’ actions			1 2 3 4 5	
C2. Extent to which diversity exists in your industry				
No diversity 1	Slight diversity 2	Moderate diversity 3	Significant diversity 4	Considerable diversity 5
Customers’ buying habits			1 2 3 4 5	
Nature of competition			1 2 3 4 5	
Product attributes/design			1 2 3 4 5	
Suppliers’ attitudes/behaviour			1 2 3 4 5	
C3. Actions of direct competitors have affected the company in terms of				
Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
Creating more uncertainty			1 2 3 4 5	
Being visibly hostile through aggressive marketing			1 2 3 4 5	
Causing significant loss of market share and sales revenue			1 2 3 4 5	
Making price competition more intense			1 2 3 4 5	

Questions C4 and C5 below relate to *manufacturing technology* in your company in the last 5 years (**These questions are for manufacturing companies only**)

C4. Please tick below [<input checked="" type="checkbox"/>] the answer that best describes your company's production process	
<input type="checkbox"/> Job shop	<input type="checkbox"/> Paced assembly
<input type="checkbox"/> Batch flow	<input type="checkbox"/> Continuous flow

C5. Using the 5-point scale below for the level of complexity of the manufacturing (or service) provision, please indicate the extent to which you agree/disagree that:							
Totally disagree	Slightly agree	Neutral	Agree	Totally agree			
1	2	3	4	5			
Products marketed by the company are diverse			1	2	3	4	5
Significant differences exist in the batch size of manufactured products			1	2	3	4	5
Within product or service lines groups, different processes are used to manufacture the products			1	2	3	4	5
Changes in volumes of products are frequent			1	2	3	4	5
Support departments' resources consumed by each product are different			1	2	3	4	5

Question C6 below relates to your company's *business strategy* during the last 5 years

C6. Please indicate, using the 5-point scale below, the extent to which you agree/disagree with each of the following statements in relation to your company's business strategy							
Totally disagree	Slightly agree	Neutral	Agree	Totally agree			
1	2	3	4	5			
Focus more on increasing market share and/or sales growth rather than maximizing short-term earnings			1	2	3	4	5
Increase investment (as percent of sales spent) on research and development			1	2	3	4	5
Increase marketing expenditure to increase market share			1	2	3	4	5
Compete through focusing more on brand image rather than product selling prices			1	2	3	4	5
Focus more on improving product features rather than reducing manufacturing costs			1	2	3	4	5
Seek to compete with unique products rather than achieve a high market share through low prices.			1	2	3	4	5
Compete by seeking access to new market opportunities rather than selling prices, quality, and customer's service in current market			1	2	3	4	5
Always seek to introduce new products rather than focuses on high production volume			1	2	3	4	5

Questions C7 and C8 below relate to *decision management and organisational structure* in your company during the last 5 years.

C7. Internal operating environment: using the 5-point scale below, please circle the appropriate number relating to the extent to which the following decisions are made by top management :										
Never 1		Rarely 2		Sometimes 3		Often 4		Always 5		
New product introduction decisions						1	2	3	4	5
Capital investment decisions						1	2	3	4	5
Decisions to attempt penetration into new markets						1	2	3	4	5
Pricing policy decisions						1	2	3	4	5
Decisions on major changes to processes (e.g. introduction of new manufacturing technology)						1	2	3	4	5
Personnel policy decisions						1	2	3	4	5

C8. With regard to rules, routines, job descriptions that guide your company's workforce, please circle the appropriate number to indicate their frequency of existence										
Never 1		Rarely 2		Sometimes 3		Often 4		Always 5		
Whatever situation arises, there are policies and procedures to follow in dealing with it.						1	2	3	4	5
When rules and procedures exist here, they are written						1	2	3	4	5
The employees here are monitored for compliance with established procedures						1	2	3	4	5
There are strong penalties for failure to comply with established procedures						1	2	3	4	5

SECTION D: MANAGEMENT ACCOUNTING PRACTICE - COSTING SYSTEMS -

D1. For each of the following costing techniques, please circle the appropriate number on the 5-point scales below to indicate the extent to which a technique										
(i) is used by your company					and	(ii) how well it meets your needs				
Not used at all 1	Moderately used 2		Highly used 3		Costing Technique	Does not meet needs 1	Moderately meets needs 2		Very well meet needs 3	
1	2	3	4	5		1	2	3	4	5
1	2	3	4	5	Variable (or marginal) costing	1	2	3	4	5
1	2	3	4	5	Full (absorption) costing	1	2	3	4	5
1	2	3	4	5	Standard costing	1	2	3	4	5
1	2	3	4	5	Activity-based costing (ABC)	1	2	3	4	5
1	2	3	4	5	Target costing	1	2	3	4	5
1	2	3	4	5	Life-cycle costing	1	2	3	4	5
1	2	3	4	5	Quality cost reporting	1	2	3	4	5
1	2	3	4	5	Other techniques (please specify)	1	2	3	4	5

D2. Please circle the appropriate number on the 5-point scales below to indicate

i) The main purposes of product cost information in your company					ii) how satisfied you are with your costing system for these purposes					
Not used at all	Moderately used			Highly used	Purposes of Cost Information	Very dissatisfied	Reasonably satisfied		Very satisfied	
1	2	3	4	5		1	2	3	4	5
1	2	3	4	5	Determining the cost of products or services	1	2	3	4	5
1	2	3	4	5	Budget preparation	1	2	3	4	5
1	2	3	4	5	Valuing inventory for external reporting (i.e. preparing financial statements)	1	2	3	4	5
1	2	3	4	5	Pricing products or services	1	2	3	4	5
1	2	3	4	5	Making product / service mix decisions	1	2	3	4	5
1	2	3	4	5	Making product cost reduction decisions	1	2	3	4	5
1	2	3	4	5	Controlling operations	1	2	3	4	5
1	2	3	4	5	Strategic planning	1	2	3	4	5
1	2	3	4	5	Measuring performance	1	2	3	4	5
1	2	3	4	5	Other purposes (please specify)	1	2	3	4	5

SECTION E: MANAGEMENT ACCOUNTING PRACTICE - BUDGETING SYSTEMS –

E1. For the budgets listed below, please circle the appropriate number on the 5-point scales to indicate the extent to which each of these budgets

(i) is used and **(ii) how well it meets your needs**

Not used at all	Moderately used			Highly used	Budgets	Does not meet needs	Moderately meets needs		Very well meet needs	
1	2	3	4	5		1	2	3	4	5
1	2	3	4	5	Sales budget	1	2	3	4	5
1	2	3	4	5	Production budget	1	2	3	4	5
1	2	3	4	5	Direct materials budget	1	2	3	4	5
1	2	3	4	5	Direct labour budget	1	2	3	4	5
1	2	3	4	5	Overheads budget	1	2	3	4	5
1	2	3	4	5	Master budget	1	2	3	4	5
1	2	3	4	5	Flexible budget	1	2	3	4	5
1	2	3	4	5	Capital budget	1	2	3	4	5
1	2	3	4	5	Cash budget	1	2	3	4	5
1	2	3	4	5	Administrative expenses budget	1	2	3	4	5
1	2	3	4	5	Other budgets (please specify)	1	2	3	4	5

E2. Please indicate, by circling the appropriate number on the 5-point scale below, which of the following methods are used in your company when preparing budgets :					
Not used at all 1	Slightly used 2	Moderately used 3	Significantly used 4	Always used 5	
Traditional incremental methods		1	2	3	4 5
Zero-based budgeting (ZBB)		1	2	3	4 5
Activity-based budgeting (ABB)		1	2	3	4 5

E3. Please circle the appropriate number on the 5-point scales below to indicate										
i) the extent to which budgets serve various purposes					and ii) how satisfied you are with your budgeting system for these purposes					
Not used at all 1	2	Moderately used 3	4	Highly used 5	Purposes	Very Dissatisfied 1	2	Reasonably satisfied 3	4	Very satisfied 5
1	2	3	4	5		Planning annual operations	1	2	3	4
1	2	3	4	5	Forecasting external non-financial data (e.g. forecasts of market-demand, government regulations, competitors' actions, etc)	1	2	3	4	5
1	2	3	4	5	Planning financial position; cash flows	1	2	3	4	5
1	2	3	4	5	Communicating plans to managers	1	2	3	4	5
1	2	3	4	5	Coordinating activities across the business units	1	2	3	4	5
1	2	3	4	5	Controlling the activities of the business units	1	2	3	4	5
1	2	3	4	5	Responsibility reporting: distinguishing between controllable and non-controllable items	1	2	3	4	5
1	2	3	4	5	Motivating managers to strive to achieve targets	1	2	3	4	5
1	2	3	4	5	Measuring and evaluating managerial performance	1	2	3	4	5

SECTION F: MANAGEMENT ACCOUNTING PRACTICE – PERFORMANCE MEASUREMENT

F1. For the performance measurement techniques listed below, Please circle the appropriate number on the 5-point scales to indicate the extent to which each of the following techniques										
(i) is used					and (ii) how well it meets your needs					
Not used at all 1	2	Moderately used 3	4	Highly used 5	Performance Measurement Techniques	Does not meet needs 1	2	Moderately meets needs 3	4	Very well meet 5
1	2	3	4	5		Residual income	1	2	3	4
1	2	3	4	5	Economic value added (EVA)	1	2	3	4	5
1	2	3	4	5	Return on investment (or return on capital employed)	1	2	3	4	5
1	2	3	4	5	Meeting budget target	1	2	3	4	5
1	2	3	4	5	Divisional profit	1	2	3	4	5
1	2	3	4	5	Benchmarking	1	2	3	4	5
1	2	3	4	5	Customer satisfaction	1	2	3	4	5
1	2	3	4	5	Market share	1	2	3	4	5
1	2	3	4	5	Employees' satisfaction	1	2	3	4	5
1	2	3	4	5	Balanced scorecard	1	2	3	4	5
1	2	3	4	5	Other (please specify)	1	2	3	4	5

F2. Please circle the appropriate number on the 5-point scales below to indicate:											
(i) the extent to which performance measurements system serves the following purposes					and	(ii) How satisfy are you with your performance measurements system for these purposes?					
Not used at all	Moderately used		Highly used		Purpose of Performance Measure	Very Dissatisfied		Reasonably satisfied		Very satisfied	
1	2	3	4	5		1	2	3	4	5	
1	2	3	4	5	Evaluation of investments	1	2	3	4	5	
1	2	3	4	5	Measurement of efficiency	1	2	3	4	5	
1	2	3	4	5	Provide information on fluctuations (trends) in performance across different time periods (e.g. weekly, monthly, quarterly etc.)	1	2	3	4	5	
1	2	3	4	5	Information provided to enable managers to evaluate and monitor key activities of the company unit	1	2	3	4	5	
1	2	3	4	5	Evaluation of product/service quality	1	2	3	4	5	
1	2	3	4	5	Provide information to enable your company units to compare their area of responsibility with similar units in the industry (e.g. market share, profits, product attributes, prices, costs, etc)	1	2	3	4	5	
1	2	3	4	5	Measurement of performance in terms of customer satisfaction	1	2	3	4	5	
1	2	3	4	5	Measurement of individual or team-based performance	1	2	3	4	5	
1	2	3	4	5	Measurement of performance in terms of employee satisfaction	1	2	3	4	5	
1	2	3	4	5	Measurement of innovation	1	2	3	4	5	
1	2	3	4	5	Other (please specify)	1	2	3	4	5	

SECTION G: MANAGEMENT ACCOUNTING CHANGE IN YOUR COMPANY

G1. Using the 5-point scales below, please indicate the frequency of change to a) product costing, b) planning & budgeting, and c) managing performance in the last 5 years and the degree of success achieved										
(i) Number changes in management accounting practices					and	(ii) Degree of success achieved				
No change 1	1 to 2 changes 2	3 to 4 changes 3	5 to 6 changes 4	> 6 changes 5	a) Changes in Product Costing practices	Not successful 1	Moderately successful 2	Moderately successful 3	Very successful 4	Very successful 5
1	2	3	4	5	Replacing an existing technique	1	2	3	4	5
1	2	3	4	5	Adding a new technique	1	2	3	4	5
1	2	3	4	5	Modification of information output purpose	1	2	3	4	5
1	2	3	4	5	Operational modification	1	2	3	4	5
1	2	3	4	5	Reduction in the usage of the technique	1	2	3	4	5
No change 1	1 to 2 changes 2	3 to 4 changes 3	5 to 6 changes 4	> 6 changes 5	b) Changes in budgeting practices	Not successful 1	Moderately successful 2	Moderately successful 3	Very successful 4	Very successful 5
1	2	3	4	5	Replacing an existing technique	1	2	3	4	5
1	2	3	4	5	Adding a new technique	1	2	3	4	5
1	2	3	4	5	Modification of information output purpose	1	2	3	4	5
1	2	3	4	5	Operational modification	1	2	3	4	5
1	2	3	4	5	Reduction in the usage of the technique	1	2	3	4	5
No change 1	1 to 2 changes 2	3 to 4 changes 3	5 to 6 changes 4	> 6 changes 5	c) Changes in performance measurement practices	Not successful 1	Moderately successful 2	Moderately successful 3	Very successful 4	Very successful 5
1	2	3	4	5	Replacing an existing technique	1	2	3	4	5
1	2	3	4	5	Adding a new technique	1	2	3	4	5
1	2	3	4	5	Modification of information output purpose	1	2	3	4	5
1	2	3	4	5	Operational modification	1	2	3	4	5
1	2	3	4	5	Reduction in the usage of the technique	1	2	3	4	5

SECTION H: FACTORS INFLUENCING MANAGEMENT ACCOUNTING PRACTICES

H1. Using the 5-point scales below, please indicate the extent to which you believe the factors listed below influence change in management accounting practice with respect to costing, planning & budgeting, and managing performance.

No influence 1	Slight influence 2	Moderate influence 3	Significant influence 4	Considerable influence 5		
Influencing factors: ↓	Costing practices		Budgeting practices		Managing performance practices	
A generally turbulent external environment	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
When there is variation in product-market and orientation	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
When there is variation in consumer characteristics	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
When there is variation in production technologies	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
When there is variation in raw materials markets	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
Perceived threat from hostile competition	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
The level of product customization	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
The level of complexity of the manufacturing (or service) provision	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
A strategy based on high levels of product differentiation	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
A strategy based on low price products	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
A strategy based on increasing market share	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
A strategy based on maximizing short-term earnings	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
A strategy based on new products and market opportunities	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
A strategy based on a narrow product range with high production volumes	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
Centralisation in making decisions	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
Formalization in following procedures	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
Age of the company	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
Size of the company	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
Type of industry	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	
Type of ownership	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	

Appendix C Arabic Translation of the Research Questionnaire

الجزء (أ) : معلومات شخصية

الرجاء أجب عن الأسئلة من (1أ) إلى (3أ) بوضع علامة [√] أمام الإجابة المناسبة

1أ. مجال عملك في الشركة:	[] مدير مالي	[] رئيس قسم التكاليف والمحاسبة الإدارية	[] محاسب مالي
	[] محاسب إداري	[] مراجع	أخرى الرجاء حدد.....

2أ. الخبرة	أقل من 5 سنوات	5- أقل من 10 سنوات	10- أقل من 15 سنة	15 سنة فأكثر
بعد التخرج	[]	[]	[]	[]
في العمل الحالي	[]	[]	[]	[]
في الشركة الحالية	[]	[]	[]	[]

3أ. المؤهل والتخصص	[] دبلوم متوسط في (من فضلك حدد التخصص).....
	[] بكالوريوس/ليسانس في (من فضلك حدد التخصص).....
	[] ماجستير في (من فضلك حدد التخصص).....
	[] دكتوراه في (من فضلك حدد التخصص).....
	[] مؤهلات مهنية (من فضلك حدد).....
	[] أخرى (الرجاء التحديد).....

الجزء (ب): معلومات عامة عن الشركة

من فضلك أجب عن الأسئلة من (ب1) إلى (ب4) بوضع علامة [√] أمام الإجابة المناسبة

ب1. عمر الشركة:	[] أقل من 5 سنوات	[] 5- أقل من 10 سنوات	[] 10- أقل من 20 سنة	[] 20 سنة فأكثر
-----------------	--------------------	------------------------	-----------------------	------------------

ب2. نوع نشاط الشركة الرئيسي:	[] صناعي	[] تجاري	[] خدمات مالية	[] نفط وغاز
	[] زراعي	[] نقل ومواصلات	[] بناء	[] سياحة
	[] أخرى (الرجاء حدد).....			

ب3. الرجاء حدد تقريباً حجم العناصر التالية للشركة:	[] أقل من مليون	[] 1- أقل من 5 مليون	[] 5-10 مليون	[] أكثر من 10 مليون
المبيعات السنوية (بالدينار الليبي)	[] أقل من 100	[] 100-500	[] 501-1500	[] أكثر من 1500
عدد العاملين	[] أقل من 100	[] 100-500	[] 501-1500	[] أكثر من 1500

ب4. نوع الملكية:	[] ملكية عامة	[] ملكية خاصة
	[] مشاركة بين الدولة وشريك أجنبي	[] مشاركة بين الدولة وشريك محلي
	[] مشاركة بين شريك محلي وشريك أجنبي	[] الرجاء تحديد نسبة حصة الدولة %.....
	[] الرجاء تحديد نسبة حصة الدولة %.....	[] الرجاء تحديد نسبة حصة الشريك محلي %.....

ب.5. أداء الشركة						
الرجاء حدد باستخدام المقياس دو خمس درجات أدناه لعناصر الأداء المدرجة، كيف ترى أداء الشركة الحالي مقارنة بالشركات المنافسة :						
منخفض		أقل من المتوسط		متوسط	عالي	عالي جداً
1		2		3	4	5
5	4	3	2	1	إيرادات المبيعات	
5	4	3	2	1	صافي الدخل (الأرباح)	
5	4	3	2	1	صافي التدفقات النقدية	
5	4	3	2	1	العائد على الاستثمار	
5	4	3	2	1	تخفيض التكاليف	
5	4	3	2	1	البحث والتطوير	
5	4	3	2	1	الحصة السوقية	
5	4	3	2	1	رضا الزبائن	
5	4	3	2	1	تطوير أسواق جديدة	
5	4	3	2	1	تطوير منتجات جديدة	
5	4	3	2	1	تطوير العاملين	
5	4	3	2	1	أخرى (الرجاء حدد).....	

الجزء (ج) خصائص بيئة العمل للشركة					
الأسئلة من ج 1 إلى ج 3 تتعلق بالبيئة الخارجية للشركة خلال 5 السنوات الماضية. باستخدام المقياس دو خمس درجات المبين أدناه يرجى وضع دائرة على الرقم المناسب لكل عنصر من العناصر التالية:					
ج.1. مدى التغيير في البيئة الخارجية للشركة :					
لا يوجد تغيير	تغيير بسيط	تغيير متوسط	تغيير كبير	تغيير كبير جداً	
1	2	3	4	5	
5	4	3	2	1	التقنيات المستخدمة في إنتاج المنتجات/ الخدمات
5	4	3	2	1	سلوك المنافسين
5	4	3	2	1	الطلب على المنتجات/الخدمات
5	4	3	2	1	التشريعات الحكومية
5	4	3	2	1	سلوك النقابات العمالية
ج.2. مدى التنوع في طبيعة الصناعة التي تنتمي إليها الشركة:					
عدم تنوع	تنوع بسيط	تنوع متوسط	تنوع كبير	تنوع كبير جداً	
1	2	3	4	5	
5	4	3	2	1	العادات الشرائية للزبائن
5	4	3	2	1	طبيعة المنافسة
5	4	3	2	1	تصميم ومواصفات المنتجات/الخدمات
5	4	3	2	1	سلوك الموردين
ج.3. سلوك المنافسين المباشرين أثر على الشركة فيما يتعلق ب:					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
1	2	3	4	5	
5	4	3	2	1	خلق أو زيادة حالة عدم التأكد بشكل كبير
5	4	3	2	1	خلق عدائية كبيرة في مجال التسويق
5	4	3	2	1	التسبب في فقدان كبير في الحصة السوقية وإيرادات المبيعات
5	4	3	2	1	جعل المنافسة السعرية شديدة الحدة

الأسئلة من 4 و 5 ج أدناه تتعلق بتقنية التصنيع المستخدمة من قبل شركة خلال 5 سنوات الماضية (هذان السؤالان خاصان بالشركات الصناعية فقط)

ج4. الرجاء وضع علامة [√] أمام أفضل وصف لعمليات الإنتاج بالشركة		
[] حسب الطلب	[] تجميعي	[] الدفعة
[] المستمر	[] أخرى (الرجاء التحديد).....	

ج5. باستخدام مقياس دو خمسة درجات أدناه حول درجة التعقيد في عمليات تقديم المنتجات/الخدمات, الرجاء حدد إلى أي مدى أنت موافق أو غير موافق					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
1	2	3	4	5	
المنتجات/الخدمات التي تسوق من قبل الشركة متعددة جداً	1	2	3	4	5
اختلافات معنوية توجد في أحجام كمية الإنتاج/الخدمة	1	2	3	4	5
عمليات متعددة تستخدم لإنتاج المنتج أو تقديم الخدمة	1	2	3	4	5
التغيرات في حجم الإنتاج/الخدمات يحدث باستمرار	1	2	3	4	5
موارد الأقسام الداعمة المستخدمة لإنتاج/أداء كل منتج/خدمة مختلفة	1	2	3	4	5

ج6. السؤال الآتي يتعلق بإستراتيجية الشركة التجارية خلال خمس السنوات الماضية

الرجاء حدد, باستخدام مقياس الخمس الدرجات المدون أدناه, إلى أي مدى أنت موافق أو غير موافق مع كل من العبارات التالية فيما يتعلق بإستراتيجية الشركة التجارية					
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
1	2	3	4	5	
التركيز أكثر على زيادة الحصة السوقية أو/ ونمو المبيعات بدلاً من التركيز على الأرباح في الأمد القصير	1	2	3	4	5
زيادة الإستثمار (كنسبة من المبيعات) على عمليات البحث والتطوير	1	2	3	4	5
زيادة الإنفاق التسويقي لزيادة الحصة السوقية	1	2	3	4	5
التنافس من خلال التركيز على تحسين صورة المنتج/الخدمة أكثر من التركيز على أسعار بيعها	1	2	3	4	5
التركيز على تحسين خصائص المنتج/الخدمة أكثر من التركيز على تخفيض تكلفة	1	2	3	4	5
السعي للتنافس من خلال تقديم إنتاج/خدمة متميزة بدلاً من التركيز على تحقيق حصة سوقية كبيرة من خلال تخفيض الأسعار	1	2	3	4	5
التنافس من خلال البحث المستمر على فرص الدخول في أسواق جديدة	1	2	3	4	5
السعي المستمر في تقديم منتجات/خدمات جديدة	1	2	3	4	5

السؤالان ج7 و ج8 أدناه يتعلقان بعملية إدارة القرارات والبناء التنظيمي للشركة خلال خمسة سنوات الماضية :

ج7. باستخدام مقياس الخمس درجات أدناه, الرجاء وضع دائرة على الرقم المناسب فيما يتعلق بمدى اتخاذ القرارات التالية من قبل الإدارة العليا:					
مطلقاً	نادراً	أحياناً	غالباً	دائماً	
1	2	3	4	5	
القرارات التي تتعلق بتطوير منتج/خدمة جديدة	1	2	3	4	5
القرارات الإستثمارية الرأسمالية	1	2	3	4	5
القرارات المتعلقة بالدخول في أسواق جديدة	1	2	3	4	5
القرارات المتعلقة بالتسعير	1	2	3	4	5
القرارات المتعلقة بالتغييرات الرئيسية للعمليات (مثل تبني أو استخدام تقنيات جديدة)	1	2	3	4	5
القرارات المتعلقة بالعاملين مثل التعيين, التدريب, والعلو والحوافز	1	2	3	4	5

ج8. فيما يتعلق بالروتينين والقواعد وتوصيف العمل التي يسترشد بها العاملين الرجاء , وضع دائرة على الرقم المناسب:					
مطلقاً	نادراً	أحياناً	غالباً	دائماً	
1	2	3	4	5	
					أية حالة تنشأ يوجد لها سياسات واجراءات تتبع للتعامل معها
					عندما تكون الإجراءات موجودة تكون مكتوبة
					تتم رقابة العاملين وفقاً للالتزامهم بالإجراءات المعتمدة
					هناك عقوبات صارمة لمخالفة الإجراءات واللوائح المعتمدة

الجزء(د): أساليب المحاسبة الإدارية – نظم التكاليف-

د1. لكل من نظم محاسبة التكاليف التالية, الرجاء وضع دائرة على الرقم المناسب لمقياس خمسة درجات أدناه لتحديد إلى أي مدى:														
أ) يستخدم من قبل الشركة					ب) يفي باحتياجات الشركة									
تستخدم دائماً	تستخدم أحياناً	لا تستخدم مطلقاً	نظم التكاليف			لا تستخدم مطلقاً	تستخدم دائماً	تستخدم أحياناً	لا تستخدم مطلقاً	يفي بالمتطلبات بشكل متوسط	يفي بالمتطلبات بدرجة كبيرة جداً			
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
					التكاليف المتغيرة	1	2	3	4	5				
					التكاليف الكلية	1	2	3	4	5				
					التكاليف المعيارية	1	2	3	4	5				
					التكاليف على أساس النشاط	1	2	3	4	5				
					التكلفة المستهدفة	1	2	3	4	5				
					تكاليف دورة حياة المنتج	1	2	3	4	5				
					تكاليف الجودة	1	2	3	4	5				
					أخرى (الرجاء حدد).....	1	2	3	4	5				

د2. الرجاء وضع دائرة على الرقم المناسب لمقياس خمس درجات أدناه لتحديد														
أ) الأغراض الرئيسية التي تستخدم فيها معلومات التكاليف بالشركة					ب) ما مدى رضائك عن استخدام الشركة لنظم التكاليف لهذه الأغراض									
تستخدم دائماً	تستخدم أحياناً	لا تستخدم مطلقاً	الأغراض			لا تستخدم مطلقاً	تستخدم دائماً	تستخدم أحياناً	لا تستخدم مطلقاً	مرضي بدرجة كبيرة جداً	مرضي إلى حد ما	غير مرضي مطلقاً		
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
					تحديد تكلفة المنتجات/الخدمات	1	2	3	4	5				
					اعداد الموازنات	1	2	3	4	5				
					تقييم المخزون لغرض التقارير الخارجية (مثل اعداد القوائم المالية)	1	2	3	4	5				
					تسعير المنتجات/الخدمات	1	2	3	4	5				
					اتخاذ القرارات بشأن التشكيلة المثلى للمنتجات/الخدمات	1	2	3	4	5				
					اتخاذ القرارات المتعلقة بتخفيض التكاليف	1	2	3	4	5				
					العمليات الرقابية	1	2	3	4	5				
					التخطيط الاستراتيجي	1	2	3	4	5				
					قياس الأداء	1	2	3	4	5				
					أغراض أخرى (الرجاء التحديد).....	1	2	3	4	5				

الجزء (٥): أساليب المحاسبة الإدارية-الميزانيات التقديرية-

1. لكل من الميزانيات التقديرية الآتية، الرجاء وضع دائرة على الإجابة المناسبة لمقياس خمسة درجات لتبين ما مدى كل من هذه الميزانيات التقديرية:											
(ب) تفي باحتياجات الشركة					(أ) تستخدم						
تفي بالمتطلبات بشكل متوسط		تفي بالمتطلبات بشكل متوسط		لا تفي بالمتطلبات مطلقاً	نوع الميزانية التقديرية		لا تستخدم مطلقاً		تستخدم أحياناً	تستخدم دائماً	
5	4	3	2	1			1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية للمبيعات		1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية للإنتاج		1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية للمواد المباشرة		1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية للعمل المباشرة		1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية للتكاليف غير المباشرة		1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية الشاملة		1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية المرنة		1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية الرأسمالية		1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية للتدفقات النقدية		1	2	3	4	5
5	4	3	2	1	الميزانية التقديرية للمصروفات الإدارية		1	2	3	4	5
5	4	3	2	1	ميزانيات تقديرية أخرى (حدد).....		1	2	3	4	5
2. الرجاء حدد، بوضع دائرة على الإجابة المناسبة لمقياس خمسة درجات باستخدام المقياس المدرج أدناه، أي من الأساليب التالية تستخدم من قبل الشركة عند إعداد الميزانيات التقديرية:											
لا يستخدم مطلقاً		يستخدم بدرجة بسيطة		يستخدم بدرجة متوسطة		يستخدم بدرجة كبيرة		يستخدم بدرجة عالية			
1		2		3		4		5			
الأساليب التقليدية		الميزانية التقديرية على الأساس الصفري		الميزانية التقديرية على أساس الأنشطة							
5		4		3		2		1			
5		4		3		2		1			
5		4		3		2		1			
3. الرجاء وضع دائرة على الإجابة المناسبة لمقياس خمسة درجات لتبين الآتي:											
(ب) ما مدى درجة رضائك على مقابلة الميزانية التقديرية المعدة من قبل الشركة لهذه الأغراض						(أ) إلى أي مدى تخدم الميزانية التقديرية هذه الأغراض					
مرضي جداً		مرضي إلى حد ما		غير مرضي		الأغراض		لا تستخدم إطلاقاً		تستخدم بشكل عال جداً	
5	4	3	2	1			1	2	3	4	5
5	4	3	2	1	تخطيط العمليات السنوية		1	2	3	4	5
5	4	3	2	1	التنبؤ بالأحداث الغير مالية الخارجية (مثل التنبؤات بالسوق والطلب، سلوك المنافسين، والتشريعات الحكومية)		1	2	3	4	5
5	4	3	2	1	التخطيط للوضع المالي والتدفقات النقدية		1	2	3	4	5
5	4	3	2	1	الإتصالات بين المديرين		1	2	3	4	5
5	4	3	2	1	تنسيق الأنشطة بين الإدارات والوحدات		1	2	3	4	5
5	4	3	2	1	رقابة أنشطة الواحدات		1	2	3	4	5
5	4	3	2	1	تقارير محاسبة المسؤولية		1	2	3	4	5
5	4	3	2	1	تحفيز المدراء لبلد الجهود لتحقيق المستهدف		1	2	3	4	5
5	4	3	2	1	لقياس وتقييم الأداء المالي		1	2	3	4	5

الجزء (و): أساليب المحاسبة الإدارية - قياس الأداء-

1. لكل من أدوات قياس الأداء المدرجة أدناه، الرجاء وضع دائرة على الرقم المناسب لمقياس خمسة درجات لتحديد إلى أي مدى كل من الأدوات التالية:										
(أ) تستخدم					(ب) تفي باحتياجات الشركة					
تستخدم دائماً	تستخدم أحياناً	لا تستخدم مطلقاً	عناصر قياس الأداء			لا يفي بالمتطلبات مطلقاً	تفي بالمتطلبات بشكل متوسط	يُفي بالمتطلبات بدرجة كبيرة جداً		
5	4	3	2	1		1	2	3	4	
5	4	3	2	1	الدخل المتبقي	1	2	3	4	5
5	4	3	2	1	القيمة الاقتصادية المضافة	1	2	3	4	5
5	4	3	2	1	العائد على الاستثمار (أو العائد على رأس المال العامل)	1	2	3	4	5
5	4	3	2	1	تحقيق الأهداف الموضوعية	1	2	3	4	5
5	4	3	2	1	الربح لكل قسم	1	2	3	4	5
5	4	3	2	1	المقارنات بأداء الشركات الأخرى	1	2	3	4	5
5	4	3	2	1	رضا المستهلك	1	2	3	4	5
5	4	3	2	1	الحصة السوقية	1	2	3	4	5
5	4	3	2	1	رضا العاملين	1	2	3	4	5
5	4	3	2	1	بطاقة الأهداف المتوازنة	1	2	3	4	5
5	4	3	2	1	أخرى (الرجاء جدد)	1	2	3	4	5

2. الرجاء وضع دائرة على الرقم المناسب لمقياس خمسة درجات لتحديد:										
(أ) إلى أي مدى يستخدم نظام قياس الأداء في شركتك لخدمة الأهداف التالية					(ب) ما مدى درجة رضائك على مقابلة نظام قياس الأداء بالشركة لهذه الأغراض					
يستخدم بشكل عال جداً	متوسط الاستخدام	لا يستخدم مطلقاً	أغراض قياس الأداء			مرضي جداً	مرضي إلى حد ما	غير مرضي		
5	4	3	2	1		1	2	3	4	
5	4	3	2	1	تقييم الاستثمارات	1	2	3	4	5
5	4	3	2	1	قياس الفاعلية	1	2	3	4	5
5	4	3	2	1	تقديم معلومات عن تغلبات (الاتجاهات) تقييم الأداء عبر فترات زمنية مختلفة (مثل أسبوعية وشهرية وفصلية.... الخ)	1	2	3	4	5
5	4	3	2	1	تزويد المدراء بمعلومات لتمكينهم من تقييم ورصد الأنشطة الرئيسية للشركة ووحداتها	1	2	3	4	5
5	4	3	2	1	تقييم جودة المنتجات/الخدمات	1	2	3	4	5
5	4	3	2	1	توفير معلومات تمكن الوحدات الإنتاجية أو الخدمية داخل الشركة من مقارنة أدائها بأداء وحدات مماثلة لها في شركات أخرى من نفس النشاط (على سبيل المثال الحصة السوقية، الأرباح، التكاليف.... الخ)	1	2	3	4	5
5	4	3	2	1	قياس الأداء فيما يتعلق برضا المستهلك	1	2	3	4	5
5	4	3	2	1	قياس أداء الأفراد والمجموعات	1	2	3	4	5
5	4	3	2	1	قياس الأداء فيما يتعلق برضا العاملين	1	2	3	4	5
5	4	3	2	1	قياس الابتكارات	1	2	3	4	5
5	4	3	2	1	أخرى (الرجاء جدد)	1	2	3	4	5

الجزء (ز). التغييرات في أنظمة المحاسبة الإدارية في الشركة

ز 1. باستخدام مقياس ذو خمسة درجات أدناه، الرجاء بين مدى التغيير الذي حدث في كل من (نظام التكاليف، نظام الميزانيات التقديرية، نظام قياس الأداء) خلال 5 سنوات السابقة، ومدى نجاحها.					
مدى نجاحها			عدد التغييرات		
أكثر من 6 تغييرات	5-6 تغييرات	3-4 تغييرات	1-2 تغيير	لا يوجد تغيير مطلقاً	(أ) تغييرات في نظام التكاليف
5	4	3	2	1	
5	4	3	2	1	استبدال أداة موجودة
5	4	3	2	1	إضافة أداة جديدة
5	4	3	2	1	تعديل في أهداف المخرجات
5	4	3	2	1	تعديل في تشغيل النظام
5	4	3	2	1	تخفيض في الأدوات
أكثر من 6 تغييرات	5-6 تغييرات	3-4 تغييرات	1-2 تغيير	لا يوجد تغيير مطلقاً	(ب) تغييرات في نظام الميزانيات التقديرية
5	4	3	2	1	
5	4	3	2	1	استبدال أداة موجودة
5	4	3	2	1	إضافة أداة جديدة
5	4	3	2	1	تعديل في أهداف المخرجات
5	4	3	2	1	تعديل في تشغيل النظام
5	4	3	2	1	تخفيض في الأدوات
أكثر من 6 تغييرات	5-6 تغييرات	3-4 تغييرات	1-2 تغيير	لا يوجد تغيير مطلقاً	(ج) تغييرات في نظام قياس الأداء
5	4	3	2	1	
5	4	3	2	1	استبدال أداة موجودة
5	4	3	2	1	إضافة أداة جديدة
5	4	3	2	1	تعديل في أهداف المخرجات
5	4	3	2	1	تعديل في تشغيل النظام
5	4	3	2	1	تخفيض في الأدوات

الجزء (ج). العوامل التي تؤثر على تطبيق أساليب المحاسبة الإدارية

لا تأثير		تأثير بسيط		تأثير متوسط		تأثير كبير		تأثير كبير جداً		
1		2		3		4		5		
العوامل المؤثرة		نظام التكاليف		نظام الميزانيات التقديرية		نظام قياس الأداء				
5	4	3	2	1	5	4	3	2	1	البيئة الخارجية المتغيرة والمتقلبة
5	4	3	2	1	5	4	3	2	1	التنوع في أسواق المنتجات والخدمات والتوجهات
5	4	3	2	1	5	4	3	2	1	التنوع في مواصفات الزبائن
5	4	3	2	1	5	4	3	2	1	التنوع في التكنولوجيا التي يمكن أن تستخدم
5	4	3	2	1	5	4	3	2	1	التنوع في أسواق الموردين
5	4	3	2	1	5	4	3	2	1	التهديد الذي يأتي من العدائية في المنافسة
5	4	3	2	1	5	4	3	2	1	عدم النمطية في تصنيع المنتجات/تقديم الخدمة
5	4	3	2	1	5	4	3	2	1	درجة تعقيد تصنيع المنتجات/تقديم الخدمة
5	4	3	2	1	5	4	3	2	1	الإستراتيجية التنافسية على أساس التميز
5	4	3	2	1	5	4	3	2	1	الإستراتيجية التنافسية على أساس تقديم أسعار منخفضة للمنتجات/الخدمات
5	4	3	2	1	5	4	3	2	1	الإستراتيجية التنافسية التي تركز على الأرباح في الأمد القصير
5	4	3	2	1	5	4	3	2	1	الإستراتيجية التنافسية التي تركز على زيادة الحصة السوقية
5	4	3	2	1	5	4	3	2	1	استراتيجية البحث عن فرص الدخول في أسواق جديدة أو تقديم منتجات/خدمات جديدة
5	4	3	2	1	5	4	3	2	1	استراتيجية الإنتاج/تقديم بالحجم الكبير والتضييق في تنوع المنتجات/الخدمات
5	4	3	2	1	5	4	3	2	1	المركزية في اتخاذ القرارات
5	4	3	2	1	5	4	3	2	1	الرسمية في اتباع الإجراءات
5	4	3	2	1	5	4	3	2	1	عمر الشركة
5	4	3	2	1	5	4	3	2	1	حجم الشركة
5	4	3	2	1	5	4	3	2	1	نوع الصناعة
5	4	3	2	1	5	4	3	2	1	نوع الملكية

