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**MANAGEMENT ACCOUNTING CHANGE IN
DEVELOPING COUNTRIES: A SOUTH AFRICAN
CASE STUDY**

BY

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**THESIS PRESENTED TO THE UNIVERSITY OF CAPE
TOWN IN FULFILMENT OF THE REQUIREMENTS OF
A DOCTOR OF PHILISOPHY DEGREE**

January 2003

DECLARATION

I hereby declare that the work contained in this thesis is my own original work and has not previously in its entirety or in part been submitted at any other university for a degree. All references cited in the text have been dully acknowledged.

Signed
Waweru N.M

Date 05/06/03

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ACKNOWLEDGEMENT

Many individuals have contributed to the development of this project. First, my special thanks go to my supervisor Professor Enrico Uliana, without whose guidance and constant advise this work would not have materialised. I would like to thank him for his tireless efforts, encouragement and patience in seeing through the accomplishment of this project.

My thanks also go to the University of Cape Town and the Department of Accounting for their financial support.

Special thanks go to Professors Zahirul Hoque, Mohamed Hussien, Anthony Atkinson and Kinandu Muragu of Griffith University, University of Connecticut, University of Waterloo and the United States International University respectively, for the assistance they gave in reshaping my original proposal. I would also like to thank Professor Robert Scapens of the University of Manchester, for the material he gave on management accounting change.

Special thanks also go to my colleague Mr Richard Chivaka in the Department of Accounting for the constant discussions that we held together in the course of this study. His initiative saw the formation of the Active Research Group, whose members have contributed valuable comments to this work.

Finally I would like to thank my friend Gerald for the encouragement he gave during difficult times. My sincere gratitude goes to my family who gave me support throughout my study. My children Lincoln and Olivia deserve my greatest appreciation for the tolerance they endured without 'Daddy' by their side for many days. My sincere gratitude and thanks also go to my wife Rose for her understanding, forbearance and financial support during the difficult times without complaint.

ABSTRACT

The study reported herein investigated the management accounting practices and management accounting change in developing countries. This study was motivated by the following factors:

- 1) Management accounting practices evolved in developed countries and were later adopted by companies operating in developing countries. There are marked economic, social and political differences between developed and developing countries. Consequently management accounting practices in these two economies are expected to be different.
- 2) Claims have been made in developed countries that management accounting is generally resistant to change (Johnson and Kaplan, 1987). During the last decade, most developing countries have experienced political and economic changes that have altered the environment in which companies within these countries operated. This study examined whether the environmental changes have had any significant affect on management accounting practices.

The main problem lies in the need to understand the management accounting practices, predictors of management accounting change and the benefits of management accounting change in developing countries.

This study set the following five objectives:

- 1) Determine the management accounting practices in South Africa.
- 2) Determine whether these practices are appropriate for companies operating in a developing economy-South Africa.
- 3) Determine whether management accounting practices have changed significantly during the last decade in South Africa.
- 4) Determine the factors that facilitated/hindered management accounting change in South Africa.
- 5) Determine whether the changes in management accounting have improved the decision making process in South Africa.

To achieve the above objectives, the research adopted a multiple research design (a survey and a field study). During the first phase of the study, a semi-structured questionnaire was sent to 300 companies listed on the Johannesburg Stock Exchange. A total of 52 companies responded to the survey. During the second phase of the study, the researcher carried out face-to-face interviews in five companies. These companies were selected on the basis of their size and past financial performance. The aim of this second phase was to understand the survey results in greater depth and to investigate the perceived benefits of management accounting change.

A theory triangulation approach was used. Agency theory was used to understand the need for management accounting in an organisation while the contingency theory was used to explain why management accounting systems of different countries are expected to differ and the factors that may affect management accounting change. The institutional framework was used as a basis of analysing management accounting change while the neoclassical theory was used to understand the value of management accounting information.

The findings from this analysis led to the following conclusions:

- 1) Most of the management accounting practices advocated in management accounting literature are being applied in South Africa. There does not appear to be a significant gap between the theory and practice of management accounting in developing countries.
- 2) Modern management accounting practices are used together with traditional practices. Both sets of practices are being used as complements rather than substitutes. However at times modern practices are said to have been implemented but do not exist in reality.
- 3) Management accounting in South Africa is presently in the third of the four stages of management accounting development suggested by the International Federation of Accountants. There is however evidence to show that it is slowly evolving into the fourth stage.

- 4) There have been significant changes in management accounting practices in South Africa. The change has been both in the way management accounting is used and in the introduction of emergent practices. This change has been more evolutionary than revolutionary. The changes are mainly attributed to the changes in competition and technology. Poor financial performance has also contributed to this change.
- 5) Change in management accounting is mainly hindered by a lack of adequate computing facilities and management inertia.
- 6) More benefits were perceived to have been received after changes were made to the management accounting systems. However it is felt that full implementation of some of the emergent practices as described in the literature may not be possible.

In summary this study mainly contributes to the limited area of knowledge on how management accounting is practiced in a developing country context and how these practices have reacted to changes in the operating environment.

CHAPTER ONE

INTRODUCTION

Developing nations should adopt formats of aspects of accounting, that is, for education, legislation, professional associations, and accounting principles and techniques which are neither those used by advanced nations when they were developing (because the environments for developing nations of the past are different from those of the present), nor necessarily those presently existing in advanced nations (which are adopted to a given kind of economic context). Instead, developing nations should adopt accounting, which consist of [adaptations] of modern methods to the special conditions of today's developing nations (Scott, 1970: 7).

1.1 Introduction

This research investigated the management accounting practices and management accounting change in developing countries. Using South Africa as a case study, the research explored the impact of globalisation and privatisation on management accounting practices in developing countries. The research attempted to answer the following questions:

- What are the management accounting practices in South Africa?
- Are these practices appropriate for companies operating in a developing economy-South Africa?
- Have management accounting practices in South Africa changed significantly during the last decade?
- What factors facilitate and/or hinder management accounting change in South Africa?
- Have changes in management accounting added value to the decision making process in South Africa?

1.2 Background

Accounting is a language that communicates economic information about an organisation to interested parties. These will include managers, shareholders, potential

investors, employees, creditors and government. Accounting information is fundamental to business survival. About 80% of new businesses fail within the first five years of opening their doors due to lack of adequate accounting information necessary to make good decisions, plan for growth and forecast cash needs (Maher, Stickney and Weil, 1994:2). Taking a philosophical perspective, Solomons (1980:3) argues that although accounting cannot feed the hungry, cure the sick, or bring enlightenment to the illiterate, it has a part to play in all these quests: He states:

“Whenever scarce resources need to be economized, there is work for the accountant to do; and the scarcer the resources are, the more important it is that they should not be misdirected or misappropriated”.

The users of accounting information may be divided into two broad categories; (1) Parties within the organisation and (2) Parties outside the organisation. To satisfy these users, accounting has evolved in two broad categories – financial accounting and management accounting. The focus of this research is on management accounting. Management accounting is concerned with the provision of information to people within the organisation to help them make better decisions and to maintain control in the organisation; whereas financial accounting is concerned with the provision of information to external parties outside the organisation for decision making and governance. According to Horngren, Foster, Datar and Uliana (1999) management accounting measures and reports financial information as well as other types of information that assist managers in fulfilling the goals of the organisation while financial accounting focuses on external reporting. More recently Sunder (2002) looked at an organisation as a set of contracts and accounting as a system necessary to assemble, implement, enforce, modify and maintain these contracts

The way management accounting has been defined over the years offers some insights that may be used to explain the way the discipline has been changing. Some of the most common definitions of management accounting are reproduced below:

The process of identifying, measuring and communicating economic information to permit informed judgements and decisions by the users of the information (The American Accounting Association, 1966)

The application of accounting techniques to the provision of information designed to assist all levels of management in planning and controlling the activities of the organisation (Platt, 1982).

The process of identification, measuring, accumulation, analysis, preparation, interpretation and communication of information used by management to plan, evaluate, and control within an entity and to assure appropriate use of and accountability for its resources (The Chartered Institute of Management Accounting (CIMA), 1996).

A common feature of the above definitions is the use of economic or financial information for management decision making. These definitions consider management accounting as an information system that provides relevant financial information to people within the organisation to help them make better decisions. The definitions not only ignore the use of non-financial information but also the external focus of today's management accounting. These definitions portray management accounting as a discipline that is largely internal to the firm; thereby reflecting a value added perspective rather than considering the value chain, thus missing opportunities for exploiting linkages with the firms' suppliers and customers (Shank and Govindarajan, 1993).

Scapens (1999) advocates a broad approach that locates management accounting within the broad dimension of the business, which recognises both economic as well as other organisational roles of management accounting. A recent definition of management accounting is that of the Institute of Management Accountants (1997), *"A value adding, continuous improvement process of planning, designing, measuring and operating financial and non-financial systems that guides management action, motivates behaviour and supports and creates the cultural values necessary to achieve an organisation's strategy, tactical and operating objectives"*.

The International Federation of Accountants (1998) adopts the CIMA (1996) definition but includes the words 'financial and operating' information.

These recent definitions take into account both financial and non-financial information and also the external and internal focus of management accounting. Horngren *et al* (1999) also takes a broader view of management accounting by saying that it measures and reports financial as well as other types of information that assists managers in fulfilling the goals of the organisation. Drury (2000) similarly points out that management accounting is concerned with both financial and non-financial information that assist decision makers in making better decisions.

The earlier definitions of management accounting portray management accounting as an information system that is internal to the firm, dealing with financial information only. Later definitions show management accounting as an information system that takes into account both financial as well as non-financial information. The external focus of management accounting is also portrayed. The present emphasis on non-financial information and the external focus shows that there have been some changes in management accounting. Section 1.3 below explores the reasons why accounting systems of developing countries are expected to be different from those of developed countries.

1.3 Developing countries and accounting

The term developing countries has been defined in a variety of ways by different authors mainly based on: 1) geographical location and 2) economic development. For example, Perera (1989) defines developing countries as those countries in the so-called Third World. Third World refers to those countries that do not belong to the Western world centred in the U.S.A, or the Eastern world with the former USSR as a centre. Wallace (1990) defines developing countries as those in the mid-stream of development and refers to an amorphous and heterogeneous group of countries mostly found in Africa, Asia, Latin America, the Middle East and the Oceanic. For the purpose of this study, the term developing country refers to the 157 countries classified as such by the World Bank in the year 2000 (Appendix 1).

Recently, some authors (Arnold and Quelch, 1998; International Finance Corporation (IFC), 1999; and Hoskinsson, Eden, Lau and Wright, 2000) have classified some developing countries as emerging economies. An emerging economy can be defined as a country that satisfies two criteria: a rapid pace of economic development and the adoption of a free market system (Arnold and Quelch, 1998). Hoskinsson *et al* (2000) defines emerging economies as those low incomes, rapid growth countries using economic liberalisation as their primary engine for growth. Emerging economies fall into two main groups; developing countries in Asia, Latin America, Africa and the Middle East and the transition economies in the former Soviet Union and China. The IFC (1999) identifies 51 rapid growth countries in Asia, Latin America, Africa and the Middle East as emerging economies. The European Bank for Reconstruction and Development (1998) classifies a further 13 transition economies as emerging economies. In this study therefore the term emerging economies refers to 64 countries (Appendix 2).

The distinction between developing countries and emerging economies is important in this study, since it demonstrates the suitability of South Africa as a case study to represent developing countries. South Africa is classified both as a developing country as well as an emerging economy. Developing countries classified as emerging economies are in a higher stage of economic development hence management accounting practices in such countries are expected to be more advanced. Emerging economies have also opened up their economies and are therefore ideal for a study on how the processes of globalisation, liberalisation and privatisation have affected management accounting practices.

South Africa is identified as a case study to represent developing countries since although classified so by the United Nations (2001) and the World Bank (2000), it lies on the upper income bracket of such countries. These reports classify South Africa together with other African countries including Libya, Botswana, Gabon and Mauritius. South Africa falls between both a developed and a third world country making it a good subject for examining the way in which management accounting

practices are applied in a developing country. South Africa is a developing country to the extent that it is an exporter of raw materials rather than finished goods. The economy is very heavily tied to one raw material, namely gold.

According to the African Development Bank (ADB, 2000) South Africa had the highest Gross Domestic Product (\$133,612 million) in Africa in the year 1998 followed by Egypt and Algeria with GDP's of \$78,570 million and \$47,137 million respectively. In terms of Gross Nation Product Per Capita, South Africa ranked fifth highest in Africa, after Libya, Seychelles, Gabon and Mauritius respectively. It was however ranked first in the Southern African region. South Africa has accelerated its privatisation program with up to \$24 billion of government assets to be released for divestiture (ADB, 2000). South Africa is therefore a developing country as well as an emerging economy. The manner in which management accounting practices/techniques have evolved and the problems currently encountered are likely to be mirrored in other countries as they develop. It is therefore expected that the management accounting practices used by companies in South Africa will form a good theoretical base for companies operating in other parts of the developing world. Companies operating in other developing countries may therefore copy these practices with fewer modifications.

1.3.1 Accounting differences in developing countries

Accounting systems in developing countries are largely extensions of those developed in other countries, particularly the UK and the US and were either imposed through colonial influence, powerful investors or multinational corporations (Perera, 1989). An examination of the accounting development patterns of most developing countries reveals that they had little chance to evolve accounting systems, which would truly reflect the local needs and circumstances. Most of the studies carried out in developing countries in regard to accounting differences relate to financial accounting (Choi and Muller, 1984; Nobes, 1983; 1984; Perera, 1989; Chamisa, 1994). The primary aim of these studies has been to establish the relevance of International Accounting Standards in developing countries. Since both management and financial accounting mainly use the same sources of data: their main difference being that they

target different users, some of the findings of these studies may be relevant to management accounting.

Perera (1989) points out that accounting is a product of its environment, and a particular environment is unique to its time and locality. He asserts that: (1) the Western style of accounting practices may not be all that relevant in many developing countries; (2) as a result, they may not be capable of satisfying the accounting information needs of those countries in the most efficient manner; (3) given the circumstances prevailing in these countries, it may be necessary to regulate accounting through legislation; and (4) a uniform system of accounting formulated to suit the local needs and circumstances of individual countries may prove to be the best alternative available to these countries for improving the serviceability of accounting information.

The relevance of the Anglo-American accounting practices to developing countries has also been questioned in recent studies (Briston, 1978; Perera, 1989; Berry and Holzer, 1993). The question of relevance has mainly been based on such factors as the identifiable differences in business environments, business ownership structures, users of accounting information and issues concerning the transfer of accounting technology. Accounting skills are also said to be culturally specific, since the culture based societal values, which influence accounting in developing countries, tend to be significantly different from those of Western capitalistic countries (Hofstede, 1980; 1983; Perera, 1989; Pourjalali and Meek, 1995). According to Berry and Holzer, (1993: 226), the Western (mainly U.S and U.K) accounting systems, have not kept pace with environmental changes so that:

.....these principles and systems...are, therefore, most unlikely to be appropriate for the entirely different social and economic environments of the developing world. Instead of blindly embracing the colonial system, developing countries should concentrate upon an assessment of their information needs in the enterprise, government and national accounting sectors and should seek to establish training programs to produce the staff for the provision and use of that information.

While accounting is seen to affect economic development, accounting itself is also affected by local environmental factors (Larson, 1993). If accounting is a product of its environment, one would expect, with different national environments, the accounting systems of many countries to differ and the quest for international accounting harmonisation to be difficult (Larson, 1993). Choi and Mueller (1984) provide a list of environmental factors that could influence national accounting systems:

- 1) Type of economy (agricultural or highly industrial);
- 2) Legal system;
- 3) Political system;
- 4) Nature of ownership (private vs. public);
- 5) Size and complexity of business firms;
- 6) Social climate;
- 7) Relative stability of currency;
- 8) Level of sophistication of management and financial community;
- 9) Degree of legislative interference in business;
- 10) Presence of specific accounting legislation;
- 11) Speed of business innovation;
- 12) Stage of economic development;
- 13) Growth pattern of the economy;
- 14) The status of professional education and organisation;
- 15) General level of education and facilitating process.

Peasnell (1993: 2) citing Caiden and Wildavsky (1980), points out that:

... By definition, being poor signifies lack of money. But the reason poor countries have trouble in getting rich is that they lack more than money; they lack capable manpower, useful data and government capacity to mobilise existing resources. Less able to cope with the unexpected, poor countries suffer more uncertainty of an extreme kind, like political instability, than do rich ones. In all these aspects rich countries possess what the poor countries miss: the redundancy of men, money and the institutions, which let organisations function smoothly and reliably in performing complex tasks.

.... Low-income countries are poor for reasons other than lack of money. Their poverty extends to information, trained manpower, and public institutions. The poor nation is not one that finds itself in temporarily straitened circumstances, like Germany and Japan after the World War 11, which needed only the chance to get going again. Rather, the poor country finds it hard to increase its wealth rapidly

because its population lacks skills, its information base is bad or non-existence, and its governments are unable to mobilize resources. The whole life of society is affected by scarcity.

Frankel (1949) while addressing the relevance of income measurement techniques of developed countries in developing countries stated;

“ Once we cease to be misled by the mirage of fictional mental accounting and by the attempts to portray through very simple accounting aggregates the infinite variety in value and preference systems of different societies with which we are confronted.....we will realise that the accounts (and accounting symbolism) of different societies are not comparable; that we cannot compare separate accounting aggregates for one society with those relating to another with a different social and economic framework, and hence a different system of accounting values. We cannot assume that what appears to be ‘income’ in one society can be compared with ‘income’ recorded in another, because since the ‘income’ which we grasp in an accounting relation and not a psychic entity what will be so recorded in the two different societies will differ in its significance according to the nature and ideals of the society itself”.

Mensah (1981) while addressing the same issue investigated whether income can be measured in identical ways and still retain its usefulness across national boundaries. He concluded that income of a company protected by its nation of domicile from the potential competition of international enterprises or products within its territory, would be different from the income without such protection. The arguments of both Mensah (1981) and Frankel (1949) clearly suggest that different measurements will be appropriate for different environments.

Hofstede (1980, 1983) found four factors underlying differences in nations’ cultural values. These factors; individualism (vs. collectivism), power distance, uncertainty avoidance and masculinity (vs. femininity), permit comparison among countries by providing information about cultural differences across nations. Most developing countries’ cultures tend to be more collective, have greater masculinity, higher

uncertainty avoidance and larger power distance than those of developed countries (Pourjalali and Meek 1995; Chow, Kato and Shields, 1994; Chow, Shields and Wu, 1999; Anderson and Lanen, 1999).

Hoque and Hopper (1994) argue that formal accounting controls will play little role in organisations if they fail to reflect the tradition, culture, economic and political factors confronting managers. Political volatility and the acute economic problems experienced in most developing countries can render rational/legal authority and controls ineffective despite worthy intentions.

Some writers have argued that developing countries are not homogeneous (Chamisa, 1994; Gharthey, 1985; Mirghani, 1982). Not sure of what accounting system may be desired by each developing country, Mirghani (1982:68) made the following remarks: *“ Developing countries cannot afford to wait for accounting to evolve as it has in developed countries because the influences that shaped accounting in the developed countries are unlikely to occur in developing countries by the same degree. Instead, a careful design strategy for the development of accounting as an effective tool for the economic development process must be developed by each developing country in view of its own specific environment”*.

Gharthey (1985) addressed the pervasiveness of corruption, political instability, poverty and misery in African countries and the weaknesses of accounting and accountability. He urged that the diverse economic circumstances of these countries require different accounting treatments. SyCip (1981) contends that the impact of inflation, devaluation and foreign exchange losses and transfer pricing on developing countries are invariably different from those of the developed world.

Wallace (1990:43) states that a methodology needs to be evolved which will help identify developing countries, which operate accounting systems that can be described as developed in the context of their level of development. In fact there could be some developing countries, which may be operating accounting systems, which are superior

to those of some developed countries. If these developing countries are identified they may serve as appropriate prototypes for other developing countries.

1.4 Statement of the research problem

The management of any institution be it in the public sector or private sector has a responsibility of coming up with policies that minimise operating costs. Such policies can make a significant contribution to the efficiency of an organisation hence facilitating the attainment of a sustainable competitive advantage. This is critical in view of the current technology, thus there is a need to plan and utilise both physical and human resources more efficiently. Effective management accounting systems can create considerable value by providing timely and accurate information about the activities that are required for the success of today's organisation.

Almost all management accounting systems have been developed in the developed economies of Europe, the USA and Japan. Companies in developing countries have later adopted these systems. There exist marked differences between developed and developing countries. For example labour costs are relatively low in developing countries hence production is mainly labour intensive. Before the 1990's, companies in developing countries enjoyed government support in the form of high taxation on imports and price controls. To these companies competition was minimum. In view of these environmental differences, literature has cautioned against the transferability of management accounting techniques. For example, Kaplan (1983) in the USA context argues that improved management accounting techniques must be developed, tested and validated in the U.S firms and not simply transferred from a company in another nation to one in the U.S. Consequently U.S managers and academics need to play an active role in developing techniques that are most appropriate in the U.S environment.

Bromwich and Bhimani (1989) argue that merely transplanting new management accounting techniques devised in foreign settings for coping with a changing manufacturing environment is not totally satisfactory because of the different conditions under which different companies operate. They argue that consideration should always be made of the political, economic, social and cultural environment

that surrounds the firm. In the context of developing countries insights of the “imported” techniques may be gained by undertaking studies of the manner in which foreign companies establishing operations in developing countries adjust their management accounting techniques to the context of the developing world.

Sheridan (1990) argues that despite the success of Japanese management accounting systems, the Japanese experience may be difficult to recreate in Britain as it is based on a different philosophy and culture. This view is supported by Drury (2000) who argues that there is no universally best management accounting system that can be applied to all organisations.

This research therefore investigated the management accounting practices in a developing country. As discussed in section 1.3.1 management accounting practices of developing countries were transplanted from developed countries. This research attempted to establish the appropriateness of these ‘imported’ techniques in developing economies.

A management accounting system should be able to add value to the decision making process for it to be useful. For example companies operating in an advanced manufacturing environment are finding that about 90% of a product life cycle costs are determined by decisions made early in the cycle such as; costs incurred on production design, process design, photo-typing programming and equipment acquisition (Breliner and Brison, 1988). Consequently, management accounting systems should be developed to aid the planning and control of product life cycle costs and monitor spending and commitments in the early stages of the product life cycle. However, Kaplan (1988) argues that management accounting reports are of little help to operating managers attempting to reduce costs and improve productivity. Johnson and Kaplan (1987) state that the current management accounting systems fail to provide accurate product costs while managers’ horizons contract to the short-term cycle of their monthly profit and loss statements coupled by responsibility accounting (Scapens, 1999). They conclude that management accounting has not changed over the last sixty years and has therefore lost relevance.

Despite the above argument, Burns *et al* (1999) in their study on the changing practices of management accounting in the U.K argue that there have been significant changes in management accounting practices in the U.K during the last decade. These changes have occurred in the way management accounting is used and not necessarily in the introduction of new systems or techniques. They conclude that this is why surveys in management accounting practices continue to show that there has been little change.

According to Sunder (2002), the design of the organisation and therefore the design of accounting and control systems depends on the conditions prevailing in the markets in which organisations acquire and sell their resources. The environment in which an organisation operates changes continually. Since the control of an organisation is conditional on the specific environment for which it is designed, changes in the environment call for changes in the management control systems.

Shields (1997) argues that although untested, it is assumed that changes in the environment cause changes in organisations, which in turn cause changes in management accounting practices. Scapens (1999) argues that there is evidence that the environment in which management accounting is practiced certainly appears to have changed. Despite this argument Atkinson, Balakrishnan, Booth, Cote, Groot, Malmi, Roberts, Uliana, and Wu, (1997) report that there is little by way of systematic enquiry as to what the changes in management accounting are, what features facilitate or hinder this change process and what the consequences are of not changing or not changing fast enough.

The period between 1990 and 2000 was characterised by the opening up of most developing countries' economies including South Africa. Many state owned enterprises have since been privatised, while most of the protectionist barriers have been removed, substantially altering the competitive environment in these economies. Globalisation and liberalisation have exposed companies in developing countries to stiff competition. Most of them now have to cope with the declining market share while several have been forced out of the market. These companies now require

quality and timely information to enable them to produce quality products at competitive prices. With globalisation a company can survive and prosper only if its costs, quality and product capabilities are as good as those of the best companies in the world.

The problem therefore lies in the need to understand how management accounting is practiced in a developing world context and how these practices have responded to the changes in the operating environment (impact of globalisation, liberalisation and privatisation). This research therefore investigated how management accounting practices in developing countries have responded to the environmental changes during the last decade.

1.5 Objectives of the study

The main objective of this study was to understand the management accounting practices, predictors of management accounting change and the perceived benefits of management accounting change in developing countries. To do so, the research using South Africa as a case study sets out to:

- 1) Determine the management accounting practices in South Africa.
- 2) Determine whether these practices are appropriate for companies operating in South Africa.
- 3) Determine if management accounting practices in South Africa have changed significantly during the last decade.
- 4) Determine the factors that facilitated and/or hindered management accounting change in South Africa.
- 5) Determine whether the changes in management accounting have added value to the decision making process in South Africa.

1.6 Significance of the study

The study will help both academics and practitioners understand why and how practice has changed and in particular why new innovative practices have or have not been adopted. The study expects to contribute to the on-going debate as to whether

management accounting practices are relevant or irrelevant in the context of the developing world.

Management accounting practices documented in the research may assist companies operating in other developing countries that wish to improve their management accounting systems. This has the potential to increase their competitiveness in the global market and hence their survival. The findings of this research also have the potential to enhance the understanding of practitioners and academics in developing countries as regards factors that facilitate/hinder management accounting change and the dangers that may result from failure to change.

1.7 Conceptual framework

The conceptual framework used in this research is set out in **figure 1.1** on the following page.

management accounting in its present level of development. The affect of this evolution on developing countries is discussed.

- **Management accounting practices:** this material was used to distinguish between conventional and contemporary management accounting practices. In particular the limitations of the conventional management accounting practices leading to the development of the contemporary practices. The application of these practices in developing countries and the differences that would make practice in developing countries and developed countries different is discussed.
- **Management accounting change:** this material discusses why management accounting practices in developing countries are expected to have changed during the last decade. Environmental factors (globalisation, liberalisation and privatisation processes) during the last decade are seen to have motivated management accounting change.

Figure 1.1 sets out the main levels of analysis of the research: adoption of management accounting practices of developed countries by companies operating in developing countries, management accounting change in developing countries and value creation of management accounting change:

- **Adoption of and the effects of management accounting evolution on developing countries:** most management accounting practices evolved in the developed countries and were later transplanted to developing countries through colonization, multinationals and education. The agency theory perspective of management accounting research demonstrates the need for management accounting and control systems in an organisation (chapter 4). The contingency theory of management accounting research (chapter 4) demonstrates that differences in the operating environment create the need for different management accounting and control systems. Consequently management accounting practices 'imported' directly from developed countries may not be appropriate in a developing country's set-up, where the social, economic and political factors are completely different.

- **Management accounting change:** this research (borrowing from Scapens, 1994) assumes that management accounting systems and practices in many organisations constitute stable rules and routines. It then makes use of the institutional framework (Scapens, 1994; Burns and Scapens, 1999,2000) to study the process of management accounting change in developing countries during the last decade. The main role of management accounting in an organisation is to provide information for decision making and control. The information requirements of an organisation will normally change as the operating environment changes. During the last decade, most developing countries have liberalised their market hence changing the manner in which their companies operate. This research investigated how management accounting practices in developing countries have responded to these environmental changes.
- **Value Creation:** according to the theory of the firm (neo-classical theory), the main goal of any business organisation is to maximize profits. For any changes to be acceptable in an organisation, it must therefore meet the cost/benefit consideration. This thesis attempted to find out whether the management accounting changes that have occurred during the last decade were perceived to have added value to the decision making process.

1.8: Organisation of the study

The thesis is organised into eight chapters.

Chapter one consists of background, a brief literature review on the relevance of management accounting practices in developing countries, the statement of the problem, the objectives of the study, the conceptual framework and the significance of the study.

Chapter two deals with the history of management accounting. It demonstrates that management accounting practices were evolved in developed countries and later adopted by companies in developing countries. It also discusses the effect of management accounting evolution on developing countries.

CHAPTER TWO

EVOLUTION OF MANAGEMENT ACCOUNTING

In organizations around the globe, management accountants are once again assuming the responsibility of relevance- knowing what need to be known. And they are being challenged with an opportunity to create a new and exciting finance function that will define their professional value into the new millennium.

(McNair, 1998:61).

2.1 Introduction

This chapter deals with the history of management accounting, the value of management accounting information and the theory of management accounting change. The objective of this chapter is to explain how management accounting developed and the reasons that have been advanced in academic literature to support this development. The chapter starts with the historical development of management accounting, followed by a consideration of why management accounting exists in an organisation. Information is identified as the main commodity provided by management accounting to the organisation, the main issue being how the value of management accounting information can be determined. The last section of this chapter briefly discusses the management accounting change and the factors that facilitate/hinder this change.

2.2 Historical development of management accounting

To help us appreciate the fact that management accounting evolved in developing countries and was later adopted by developed countries, we look at its historical development. The section discusses the effect of management accounting development on developing countries. Academic literature traces the origin of management accounting from two different perspectives. One perspective takes the economic approach and is supported by authors such as Chandler, 1977, Kaplan, 1984

and Johnson and Kaplan, 1987. The other approach is supported by authors such as Miller and O'Leary, 1987, Hoskin and Macve, 1988 and Ezzamel *et al.*, 1990 and is referred to as the non-economic approach (Luft, 1997).

Proponents of the economic approach argue that management accounting practices originated from the private sector to support business operations. For example Johnson and Kaplan (1987) state that the origins of modern management accounting can be traced to the emergence of managed, hierarchical enterprises in the early 19th century. During this period the need to gain more efficiency in production was realised. Factory owners started hiring workers on a long-term basis in a centralised workplace and hence the development of hierarchical organisations. Factories were frequently located a considerable distance from the head office of the owners, and an information system was required to increase and judge the efficiency of the managers and workers at the factory. Before this period (the industrial revolution period) workers were hired on a short-term basis and paid on work done, while factories were owner managed. The role of accounting was thus limited to record keeping.

The emergence and rapid growth of railways in the mid-nineteenth century was a major driving force in the development of management accounting systems. New measures such as cost per ton-mile, cost per passenger mile and ratio of operating expenses to revenue were created and reported on a segmented and regional basis. These measures were subsequently adopted and extended in other business sectors.

Johnson and Kaplan (1987) conclude that management accounting systems evolved to motivate and evaluate the efficiency of internal processes and not to measure the overall profits of the organisation. Hence a separate financial accounting system had to be operated to record transactions and process data for preparing annual financial statements for the owners and creditors of the firm. Management accounting and financial accounting therefore should operate independently of each other.

According to Drury (1996), further advances in management accounting were associated with the scientific management movement. Proponents of this movement,

led by Fredrick Taylor concentrated on improving the efficiency of the production process by simplifying and standardising the operations. In 1911, Charter Harrison published the first set of equations for the analysis of cost variances. By 1920, sophisticated systems to record and analyse variances from standards had been implemented and articulated in the literature.

Advances in management accounting may also be attributed to the growth of multi-activity, diversified organisations in the early 20th century. Different managers run the firms' divisions. The role of top management became that of co-ordinating the diverse activities, directing strategy and deciding on the most profitable allocation of capital to a variety of different activities. New management accounting techniques were devised to support these activities. Budgetary planning and control systems were developed to ensure that the diverse activities of different divisions were in harmony with the overall corporate goals. In addition, a measure of return on investment was devised to measure the success of each division and the entire organisation. Systems of transfer pricing were subsequently devised that sought to provide a fair basis for accounting profits between divisions.

Most of the management accounting practices used today had been developed by 1925 and, for the next 60 years there was a slow down, or even a halt, in management accounting innovations (Johnson and Kaplan, 1987). During this period external financial conventions encouraged a financial accounting mentality resulting in management accounting following and becoming subservient to financial accounting practices. It is argued that the cost of running the two systems was by then too high hence making it difficult for managers to run the two systems separately.

Later developments in management accounting may be traced in the work of Boer (2000). He asserts that management accounting began under the label 'cost accounting' in the distant past and split from cost accounting in the 1950's. A search of the Harvard Business School Library by Boer (2000), identified only four management accounting books that were published prior to 1960, one was published in 1953 and the rest were published after 1956. During this period, standard costing

was viewed as the key accounting tool in cost control and few people questioned the ability of standard costing to provide effective managerial control. According to Anita (2000), standard costing was promoted by both academic and professional organisations prior to the 1970's. Cost variance, net profit and return on investment were the primary financial measures of managerial performance. The International Federation of Accountants (IFAC, 1998) identified four stages in which management accounting has evolved:

- Stage 1 – Prior to 1950, the focus was on cost determination and financial control, through the use of budgeting and cost accounting technologies;
- Stage 2 – By 1965, the focus had shifted to the provision of information for management planning and control, through the use of such technologies as decision analysis and responsibility accounting;
- Stage 3 – By 1985, attention was focused on the reduction of waste in resources used in business processes, through the use of process analysis and cost management technologies;
- Stage 4 – By 1995, attention had shifted to the generation or creation of value through the effective use of resources, through the use of technologies, which examine the drivers of customer value, shareholder value and organisational innovation.

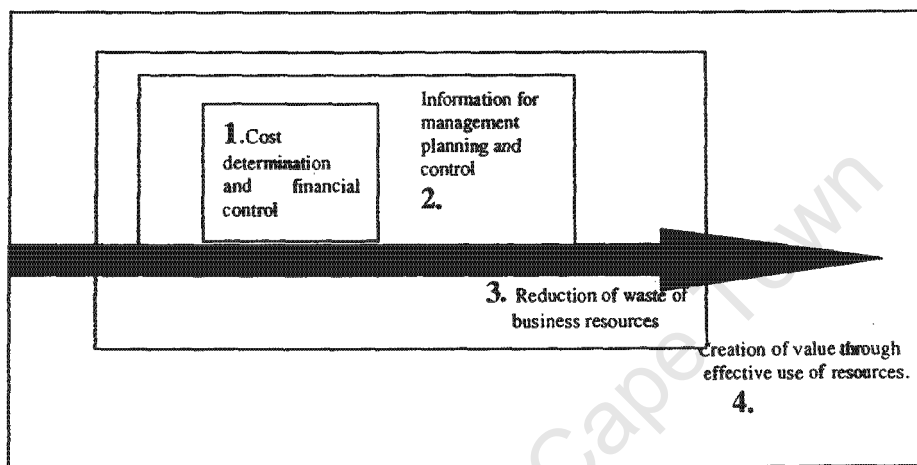
It should however be noted that although the four stages are recognisable, the process of change from one to another has been evolutionary. Consequently each stage is a combination of the old and the new, with the old reshaped to fit with the new in addressing a new set of conditions in the management environment (IFAC, 1998).

In the first stage management accounting is seen as a technical activity necessary for the pursuit of the organisational objectives while in the second stage it is seen as a management activity performing a staff role to support line management through the provision of information for planning and control. In the third and fourth stage management accounting is seen as an integral part of the management process. With improved technology, information is available in real time to all levels of management. The focus therefore shifts from the provision of information to the use

of the available resources to create value for all the stakeholders. This research relates the above four stages to practice in developing countries.

Figure 2.1 shows the four stages of management accounting evolution and how each stage encapsulates the previous stages.

Figure 2.1: The evolution of management accounting



(Source: IFAC, 1998: 6)

Proponents of the non-economic approach argue that in the nineteenth century and early twentieth century, control through measuring individual performance and analysing it by comparison with norms or standards was developed in governmental institutions such as the military (Hoskin and Macve, 1988). Offices that collected national health statistics (Hacking, 1990) also introduced these measures before they were common in firms. They argue that management accounting practices were developed for disciplinary and academic evaluation purposes and were not meant to support business as argued by the proponents of the economic approach.

Hoskin and Macve (1988) quote two institutions that may have contributed to the development of management accounting in the USA in the early parts of the nineteenth century: the West Point Military Academy and the Springfield Armoury. The academy, using numbers to grade students (examinations) produced graduates who later worked at Springfield occupying top positions. At Springfield they introduced the management by numbers learnt at the institute.

Hoskin and Macve (1988) argue that later development in accounting grew out of advances in technology of writing which include:

- 1) The disciplinary techniques for grading texts and information retrieval; and
- 2) The use of formal examinations that had been developed in academic institutions.

The introduction of written examinations and the mathematical marking systems in the universities greatly promoted the growth of accountability and accounting. Moreover most of the graduates were later to hold top positions in the corporate world. Hoskin and Macve (1988) conclude that it is therefore possible to trace the transmission of management accounting techniques from government to the private sector.

According to Hoskin and Macve (1988), production control and accountability was introduced at the Springfield Armoury by Roswell during the period 1815-33. However accountability was more of a disciplinary system than one for supporting the production effort through cost reduction. Chandler's (1977) observation that complete accountability that was introduced in the military failed to produce accurate cost figures on any item manufactured at the armoury supports this view.

Miller and O'Leary (1987) report that the development of new performance measures in both private and public sectors was intertwined by the emergence of modern social sciences in the nineteenth century. Their ideas and norms of human performance, record keeping on individuals and control through observation and analysis, occasioned this. They argue that without this broad movement in the intellectual currents of the time, it is questionable whether owners and managers of firms would have adopted new organisational practice as they did.

In conclusion, the proponents of the non-economic approach argue that management accounting practices were originally developed not to support business operations but for disciplinary purposes. Based on this argument, the issue of relevance lost advocated by Johnson and Kaplan (1987) does not arise. They support the argument

that traditional management accounting practises are not relevant to support business operations but this relevance has been lacking from the beginning of these practices.

2.2.1 Criticism on current management accounting practices

Johnson and Kaplan (1987) argue that sixty years of literature emerged advocating the separation of costs into fixed and variable components for making good product decisions and for controlling costs. However this literature never addressed the question of whether fixed cost needed to be covered by each of the products in the corporation's repertoire. They note that academic literature concentrated on elegant and sophisticated approaches to analysing costs for single product, single process firms while companies tried to manage with antiquated systems in settings that had little relationship to the simplified model assumed for analytical convenience by researchers. Johnson and Kaplan (1987) conclude that the lack of management accounting innovation in recent decades and its failure to respond to the changing environment resulted in a situation in the mid 1980's where firms were using management accounting systems that were obsolete and no longer relevant to today's competitive manufacturing environment.

Ezzamel *et al* (1990) report that in the USA business practices were developed in the decade between 1832 and 1842 and consisted of developing key disciplinary practices (disciplinary in being both practices of power and based on expert knowledge) which for the first time made it possible to manage by numbers. They argue that traditional management accounting practices were problematic and were bound to be problematic from the outset. Unlike Johnson and Kaplan (1987), who portray a situation where management accounting was meeting the needs of business, Ezzamel *et al* (1990) argue that management accounting problems lurks within it and there is unlikely to be a quick remedy. This argument is based on the theory that managing by numbers emerged for disciplinary purposes in academic institutions and was not developed to promote production by way of reducing costs, improving performance or to motivate workers in the business sector. Consequently this could never have been relevant practice in business, which operates, in a dynamic setting.

A review of management accounting literature (Johnson and Kaplan, 1987; Drury *et al.*, 1993; Drury, 1996, 2000; Bromwich and Bhimani, 1989,1994) suggests that the main criticisms of current management accounting practices may be grouped into the following subheadings:

- Failure to meet the needs of today's manufacturing and competitive environment.
- Traditional product costing systems provide misleading information for decisionmaking purposes.
- Traditional/conventional management accounting practices follow and have become subservient to financial accounting requirements.
- Management accounting focuses almost entirely on internal activities and relatively little attention is given to the external environment in which the business operates.

As a result of the various criticisms of management accounting practice, the Chartered Institute of Management Accountants commissioned an investigation to review the state of development of management accounting. In their findings Bromwich and Bhimani (1989) concluded that the evidence for arguments advanced by advocates of wholesale changes in management accounting was not yet sufficient to justify such changes.

2.2.2 Suggested way forward in management accounting practices

In their later study Bromwich and Bhimani (1994) recommended a number of approaches and practices, which seem to provide practical options to help management accountants respond to the challenges of the 1990s. In particular they recommend the adoption of activity based costing systems (ABC) in place of the traditional costing methods. Companies should also place greater emphasis on quality related costs so as to compete successfully in today's global competitive environment. In this regard a cost of quality report should be prepared to indicate the total cost to the organisation of producing products or services that do not conform to the quality requirements.

Strategic management accounting (SMA) was also suggested as a way forward in management accounting (Bromwich and Bhimani, 1989). SMA borrows from the work of Michael Porter. Porter (1985) suggests that a firm has a choice of three generic strategies in order to achieve sustainable competitive advantage:

- Cost leadership, where an enterprise aims to be the lowest cost producer within the industry.
- Differentiation, where the enterprise seeks to offer some unique dimension in its products/services that is valued by customers and which can command a premium price.
- Niche focus, which involves seeking advantage in a narrow segment in the market either by way of cost leadership or by product differentiation.

SMA aims to reduce costs while at the same time strengthening the firm's strategy. It advocates that management accounting should maintain both an internal and external focus on the activities of the firm.

Bromwich and Bhimani (1994), sought to compare the relative cost of the product attributes or characteristics with what the customer is willing to pay for them. They argue that it is the product attributes, which need to be the subject of appropriate analysis. Bromwich and Bhimani (1994), conclude that information about a number of demand and cost factors appertaining to attributes possessed by firms' products and those of its rivals is needed for optimal decision making. Management accountants can play an important role here in costing the characteristics provided and in monitoring and reporting on these costs regularly.

Other management accounting innovations suggested during the last decade include; Activity based costing (ABC) (Kaplan and Norton, 1988, 1991), Kaizen costing (Monden and Hamada, 1991), Target costing (Kato, 1993) and the Balanced score card (BSC) (Kaplan and Norton, 1992). The Just in Time inventory management system originally developed in Japan has also gained popularity in the western world during the last decade.

By the mid 1990's, circumstances had changed (Scapens *et al.*, 1996). A sufficient buffer existed in the financial reporting and management accounting system such that management accounting met the needs of managers rather than the demands of external financial reporting (Scapens, 1999). This has been made possible principally because the advances in information technology have made it possible to separate the requirements of external reporting from the provision of management information and the design of the management accounting system. The cost of providing this information has been drastically reduced.

The environment in which management accounting is practised has changed greatly during the last decade. The globalisation and liberalisation of markets leading to intensive competition has created the need for firms to require quality and timely information. Different organizational structures and new management practices have emerged (Hope and Fraser 1998). Managers now appear to be using their accounting systems and routine financial reports more flexibly, and in conjunction with a range of other performance measures both financial and non-financial (Miller and O'Leary 1993). In view of these environmental changes, management accountants must be able to provide accurate and reliable feedback on the relative success or failure of their companies' missions. These include:

- 1 Accurate prime cost data since each strategic alliance or negotiation with a purchasing group may result in different prices and different returns.
- 2 Cautious allocation of overheads since even activity-based allocation can become distorted as underlying critical factors of success and cost drivers may change quickly.
- 3 Sensitivity analysis on the impact of changes in sales mixes so that capacity constraint and contract feasibility can be evaluated.

Pearson (1996) recognises that management accountants can provide vital information in the implementation of corporate strategy to assist their organization in a competitive and changing environment in two ways:-

- 1 By linking qualitative or perceptual product characteristics with their underlying costs (e.g. quality).

- 2 By quantifying their companies' cost advantage relative to existing or potential competitors.

This knowledge can result in sustainable high returns to the company. Pearson (1996) further points out that management accountants should be involved in the changes their companies are going through in the following ways;

- 1 Provide timely feedback on the performance and financial controls over discrete projects, involving project lines or company acquisition (including work on integrating predecessors' accounting systems to maintain reporting conformity).
- 2 Exert control over the day-to-day activities by providing benchmarks for measuring progress towards strategic objectives.
- 3 Emphasise the flexible basis for data to be able to provide forecasted or simulated results under various competitive strategies.
- 4 Provide oversight and advise on data reliability provided by other companies in strategic alliances as a basis for contractual agreement.

Clearly, the above issues are critical if management accounting is to continue adding value in the present organisations.

2.3 The value of information and decision making

This section helps to understand how the value of management accounting change was measured in the research. One of the major functions of management is that of decision making. Decisions may be made intuitively, with information or with a combination of intuition and information. The quality of the decision is likely to be enhanced if it is supported by relevant (both in nature and timing) and accurate information.

Management accounting is an information system that is concerned with the provision of both financial as well as non-financial information to help people within the organization makes better decisions (Drury, 2000). Information may be defined as that data which adds knowledge (Drury, 1996). Drury (1996) argues that the

information produced by management accountants must be judged in the light of its ultimate effect on the outcomes of the decisions.

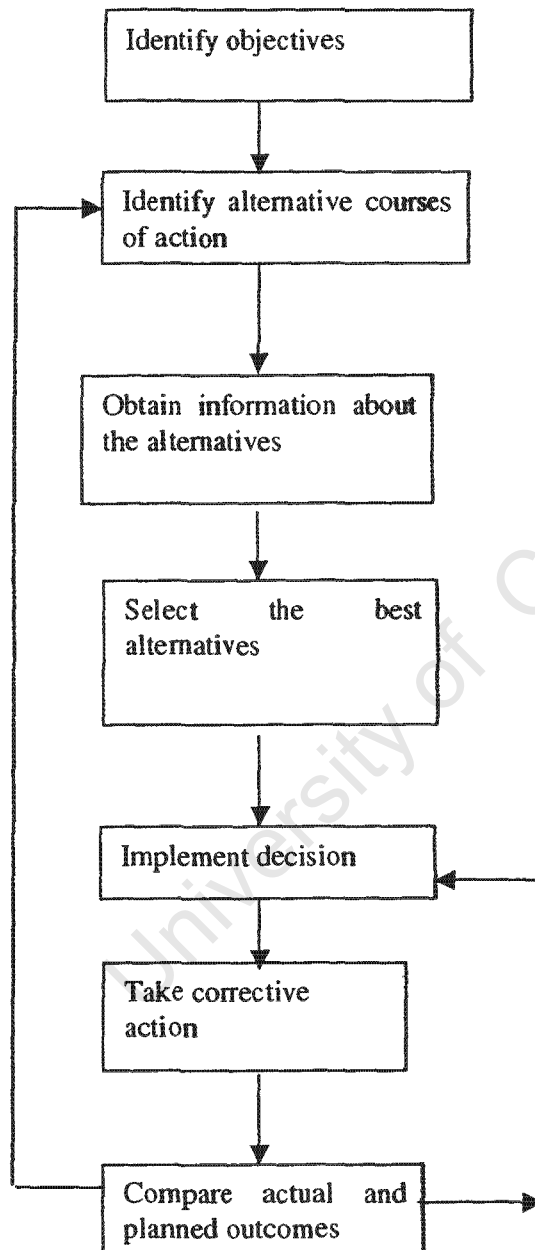
McGowan (1998) identified five qualitative characteristics of information; (1) accessibility, (2) accuracy, (3) reliability, (4) timeliness, and (5) understandability. These characteristics are necessary for accounting information to be useful to the users. The literature has it that these characteristics are necessary for accounting information to be useful to the users (Hendriksen, 1977; Brownlee, Ferris and Haskins, 1990; Drury, 1996). Accessibility is the quality of information that guarantee easy access to the information while accuracy is the quality that assures the user that the information is free from arithmetic error. Understandability refers to the quality that enables the users to perceive its significance while timeliness means having the information available to the users while it is still capable of influencing their decisions. Reliability is the quality of information that assures that information is reasonably free from error and bias and faithfully represents what it purports to represent (Delaney, Adler, Epstein and Foran, 1985).

Management accounting will provide the information required by management so as to improve the quality of the decisions made. The decision making process consists of seven main stages as shown in Figure 2.2. Timely and quality information will be required in all the seven stages of this process. This information is provided by the management information system.

For information to be considered valuable it must be acceptable to the user. Accountants therefore should provide the right information, to the right people, in the right quantity, at the right time and at minimum cost. Surveys of management accounting practice in the U.K and U.S indicate that practitioners prefer to use simple management accounting techniques rather than the complex techniques advocated in academic literature (Drury, 2000). Clearly cost/benefit considerations prevail (Scapens, 1983). According to Drury (1996), the benefits of using the complex techniques may not always outweigh the additional costs of their use. Management accounting information should therefore be produced only if it is considered that the

value derived from the use of this information exceeds the cost of collecting it. *How then should value be measured?*

FIGURE 2.2: The Decision making process



(Source: Drury 2000)

Management accounting information is a commodity, which has a price and a market (Flynn and Weil, 1991). The market for this information consists of the decision-makers in the organization. What then will be the price of this information? Taking managers to be the consumers of the information, we may apply the modern theory of economics to value the information. According to this theory (Samuelson, 1965; Lancaster, 1971; Hardwick *et al.*, 1990), when a good/service is consumed the consumer derives some benefits or satisfaction from this activity called utility. This satisfaction is the value of the commodity to the customer and represents the price he/she is willing to pay of it. The consumer, who is assumed to be rational, will choose the commodity that derives the maximum utility subject to his/her resources.

Economists have argued that the consumer can rank bundles of goods in order of preference and say that he derives more utility from one bundle than from another. Lancaster (1971) argues that it is the characteristics of the goods or services, which yield utility, rather than the goods themselves. Where an organization has abandoned a traditional management accounting practice/technique and has adopted a modern practice/technique, this research considered whether the perceived benefits of the new technique/practice have been achieved. Where the organization considers the benefits as having been achieved, then we may conclude that the practice/technique has added value to the decision making process.

Drury (1996) argues that the cost of providing information increases at an accelerating rate as the quantity, content, accuracy and speed of transmitting the information is increased. As long as the benefits exceed the costs of the information, management will continue to increase the characteristics of the information. Where management is seen to continue increasing these attributes the information was seen to have added value to the decision making process.

Another concept that was used to measure value in this research was that of Economic Darwinism. According to this concept, organisations will only continue to utilise a given procedure over a long period of time if the procedure yields benefits in excess of costs. In support of this theory, Zimmermam (1995) states that:

“In a competitive world, if surviving organisations are using some operating procedure over long periods of time then it is likely that this procedure is yielding benefits in excess of costs”.

In this research where an organisation was seen to have adopted a particular management accounting technique for a long period and the users are still happy with the technique, we interpreted this to mean that this technique has added value to the decision making process.

2.4 Management accounting change

Management accounting change has become a topic of much debate in recent years (Scapens, 1999). Changes in organisations and technology are rendering traditional management and control systems obsolete (Kaplan, 1984). The challenge is therefore to learn about innovative, leading-edge practices in successful firms. Social scientists argue that if apparently successful companies continue to use certain cost and performance measures, then the systems must be optimal (Kaplan, 1998).

Both academicians and practitioners are still discussing whether management accounting has changed, has not changed or should change. However, there is evidence that the environment in which management accounting is practised certainly appears to have changed with advances in information technology, more competitive markets, different organisational structures and new practices (Scapens, 1999). Some researchers claim that the fundamental nature of management accounting systems and practices has not changed (e.g. Drury *et al.*, 1993). There is however evidence indicating that the use of accounting within management processes has changed (Bromwich and Bhimani, 1989,1991). For example managers today appear to be using their accounting systems and routine financial reports more flexibly and in conjunction with a range of other performance measures, both financial and non-financial (Scapens, 1999).

Management accounting in the 21st century will be embedded in the cycle of learning created by a continuous improvement paradigm (McNair, 1997). This paradigm and

the tools it has created or recreated are at the heart of the race to gain and sustain a global competitive advantage. It has however, been argued that analysis techniques by themselves do not create changes; they diagnose problems and identify priorities for further action. These techniques are information gathering: diagnostic and feedback tools for the organisation. They do not create change or structures: their promise lies in the ability to reveal underlying issues and problems and to direct resources most profitably.

Booth (1996) sees change in management accounting as a move away from a discipline based on a set of financial data to a system based heavily on analytical techniques, information technology and business knowledge. Such a discipline is more value adding in its service. This is an important criterion for surviving to become part of the new age corporation.

When discussing management accounting change, this thesis adopted an institutional framework suggested by Scapens (1994) as a basis for analysis (chapter 4).

2.4.1 Factors facilitating/hindering management accounting change

Taking a contingency theory of management accounting research perspective (Hayes, 1977; Otely, 1980; Innes and Mitchell, 1990; Libby and Waterhouse, 1996) the following variables are identified as predictors of management accounting change: (1) competition, (2) decentralisation, (3) size, (4) technology, and (5) capacity to learn. These contingencies are related to the structural cost drivers of a firm. Structural cost drivers are strategic in nature and involve plans and decisions that have long term effect with regard to issues such as scale, experience, technology and complexity (Shank and Govindarajan, 1993; Blocher, Chen and Lin, 2002). A change in these structural cost drivers is likely to change the information requirements of the firm necessitating the need to change the management accounting and control systems. Since it is not clear from the existing accounting literature whether the contingent variables affect management accounting directly or through their impact on the organisational structure, this research conceptualises management accounting systems

as being dependent on organisational structure and context which may both facilitate or impede change. Libby and Waterhouse (1996) adopted a similar view.

2.4.1.1 Intensity of competition

Empirical evidence suggests a link between competition and management accounting change. Libby and Waterhouse (1996) found moderate support for the prediction that more intensely competitive environments would lead to a larger number of management accounting systems changes. Libby and Waterhouse (1996) also reported that organisations facing a higher intensity of competition are more likely to adopt modern management accounting systems. Innes and Mitchell (1990) also reported that firms operating in highly competitive international markets, where new product development, pricing policy and differentiation are critical to success and survival, were more likely to change their management accounting systems. This study conceptualises that changes in management accounting systems are expected to be high for firms operating in a more competitive environment. As the competition increases, so does the need to adopt systems that reduce costs, improve quality and reduce waste.

2.4.1.2 Degree of decentralisation

Management accounting literature finds support for decentralization as a predictor of management accounting change (Kimberly and Evanisko, 1981; Feldman, 1989; Damanpour, 1991). Kimberly and Evanisko (1981) found evidence in support of decentralisation as a significant predictor of changes in technology and other organisation variables. According to Feldman (1989), the problem of managing change involves a balance between allowing each organisational sub-unit the independence to react to its environment through changes and the need to control and integrate the work of all divisions that make up the organisation. Damanpour (1991) also found a positive relationship between decentralisation and change. It may be argued that the need to insert more control over the organisation resources will increase with more decentralisation. Therefore decentralisation and management accounting change are expected to be positively correlated.

2.4.1.3 The size of the organisation

Kimberly and Avansko (1981) found size to be positively related to technical change. However Libby and Waterhouse (1996) found no significant relationship between the size of the organisation and management accounting change. Although it may be argued that large systems are difficult to change, this study conceptualised that larger organisations are more likely to change their management accounting practices as the operating environment changes since they have more resources. Moreover the need for more controls in an organisation increases as the organisation becomes bigger and hence the need for more or better management control systems.

2.4.1.4 Technological Change

Management accounting literature has support for technological changes as predictors of management accounting change. For example Innes and Mitchell (1990) reported that out of the seven firms studied, three firms reported that the increase in production automation had led to an establishment of machine and equipment performance measures. They further reported that the importance of maintaining quality standards as technology changed had an important influence in the development of quality cost information.

Changes in production technology in a firm will create different information requirements for decision-making. This may lead to changes being made in the management accounting systems of the firm.

2.4.1.5 Organisational capacity to learn

According to Libby and Waterhouse (1996), if an organisation has expertise in an area, it will better understand and be able to evaluate changes or innovations that occur outside of the organisation in that field. Possessing expertise in an area such as management accounting not only provides the ability to utilize that expertise, but also contributes to the organisation's absorptive capacity in that area. Organisations that have invested in a large number of management accounting systems and personnel may respond to changes in or challenges arising from their environments by changing their management accounting systems.

According to Argyris and Kaplan (1994), the successful introduction of innovative technical initiatives within organisations requires education of those to be affected by the initiative, sponsorship from senior management, and the creation of internal commitment to the initiative. A high degree of organisational capacity to learn may facilitate change in management accounting systems because the expertise and personnel to educate managers about the benefits of change will be available. This study conceptualises that organisations with higher organisational capacity to learn will experience higher rates of management accounting change.

Other factors identified in management accounting literature (Innes and Mitchell, 1990; Drury and Tayles, 1995; Edwards, Boyns and Mathews, 2002) as predictors of management accounting change include: 1) poor financial performance, 2) new products, 3) staff changes, 4) inadequate computing resources, 5) management inertia and 6) lack of authority of accountants. These factors may either prompt or hinder management accounting change in an organisation. For example, Hopwood (1987) observes that significant accounting innovation (possibly as a realisation to environmental conditions severely affecting operating profit) may result in newly emergent accounting, which puts accounting where it was not. In the UK, Edwards *et al* (2002) argue that significant management accounting change occurred only with the collapse in the iron and steel corporate profitability that became apparent in the late 1950's.

In summary, changes in environmental factors (both internal and external to the firm) may facilitate and at times act as hindrances to management accounting change. The success of the firm's management accounting system will therefore depend on how well the firm reacts to these environmental factors.

2.5 Effects of management accounting development on developing countries

This section considers the effect of the evolution of management accounting on developing countries. The section starts with a brief discussion on the evolution of law in Africa. Law was chosen because it is closely related to accounting, and its

evolution in Africa is well documented. We then try to relate this development to the evolution of management accounting.

Good law in one place is good law in any place else (Seidman, 1978:29). Lawmakers can therefore copy the legal order of a developed country in order to achieve development in a developing country. As a result of this thinking, laws were mechanically copied from developed to developing countries. For example in 1874 the principal legal officer of Gold Coast (now Ghana) requested some textbooks and other legal materials so that he could draft suitable statutes defining the laws for the courts to apply. The colonial office in London responded indicating that courts of the colony should apply the common law of England, the doctrine of equity and statutes of general application, reserving however, the rights that Africans may have had under customary law. According to Seidman (1978), this statute was the prototype for the reception of all British African dependencies with only minor changes.

Ogwurike (1985:23) argues that the laws of English speaking Africa (and to some extent French speaking Africa) are mainly derived from three sources: legislation, precedence and custom. Enacted law has its source in: a) received English statutes of general application and b) local legislation. Case law has its source in judicial precedent and is made up of: a) the received English common law and the doctrine of equity and b) local judicial precedent. Customary law has its source in the diverse traditional customs.

What emerges from the above is that the colonial governments mainly imposed their laws on Africa. The same can be said of management accounting (see the conceptual framework- **Figure 1.1**). For example, Perera (1989) argues that management accounting systems of developing countries are largely those developed in other countries, particularly the Western capitalist countries such as the U.K and the USA. The systems were either imposed through colonial influence or by powerful investors or multinational corporations (Chandler and Holzer, 1984). Note also that the education system of Africa is mainly European. Such a system may have had a significant effect on the development of management accounting systems in Africa.

Seidman (1978) points out that the colonial office imposed English law on Africa without considering what sort of society the new law would mould. The authors of such law failed to address the question of how the legal order they were proposing would affect the recipient society. The transplantation of this law therefore raises the issue of relevance of such law. A particular law in two places with different social, political, economic and other circumstances can only by coincidence induce similar behaviour in both places. Seidman (1978) concludes that English law failed to recreate in Africa anything resembling English society and the English economy because of the vast differences between all the other, non-legal institutions of England and of Africa. Borrowing from this argument, this thesis attempts to establish the relevance of the management accounting practices that evolved in developed countries and were later transplanted in developing countries.

In developing countries of Africa, law has evolved through three main stages (Woodman, 1995; Ghai, 1987):

- 1) The pre-colonial era
- 2) The colonial era
- 3) The post independence era

During the pre-colonial era, African societies had no permanent regular judicial system. They lived as autonomous nationalities with their own separate governance systems (Ojwang, 2000). However each community accepted at least in principle certain codes of law, usage and convention. This is what came to be referred to as African customary law.

The arrival of the European colonial powers brought about a fundamental revolution in African legal arrangements, the results of which are with us today (Allot, 1965:216). Elias (1965:184) observes that as various European powers established their rule over African territories they sooner or later introduced their particular law. However the British system allowed an interaction between imported European laws and the various customary laws.

After independence most of the African countries retained the previous legal system save for a new constitution (Allot, 1965:222). Allot (1965) argues that the new African governments needed to: 1) modernize their legal system in line with the current economic and social needs, 2) unify their legal system, and 3) Africanise their legal system. In effect this was a call for legal change in order to make the existing systems relevant.

A seeming consensus among leading jurists is that law does not operate in a vacuum (Ogwurike, 1985). Surveys of various theories of law indicate that the notion of law has changed from society to society and from generation to generation within the same society largely because each generation asks a different set of questions, has a different set of values and is confronted with problems not too similar to the past (Ogwurike, 1985). Ogwurike (1985) further points out that legal change is a sequel to change in society. He emphasizes that law in a developed state is a result of changed social, economic and political life in society. Similarly law in a primitive society fits the facts of the social and economic life in such a society.

Based on the above arguments, the law is a product of the environment and hence, changes in the environment, will lead to changes in the law. This situation is very similar to what is expected in management accounting. Changes in the legal systems of Africa are well documented (Seidman, 1978; Elias, 1965, 1969; Ogwurike, 1985; Ghai, 1987; Corder, 2000; Ojwang, 2000). The same cannot be said of the management accounting systems of developing countries. Part of this thesis is an attempt to fill this gap.

In conclusion, as is the case with the legal systems of developing countries, management accounting systems were transplanted from developed countries. The economic, social and political systems of developed countries are totally different from those of developing countries. This raises the issue of the relevance of the borrowed management accounting systems. Management accounting systems operate

within the environment. Changes in the operating environment (economic, social and political) may lead to changes in management accounting.

2.6 Summary and conclusions

Proponents of the economic approach to management accounting development argue that management accounting practices were relevant until some time during the 20th century when they lost relevance. On the other hand proponents of the non-economic approach argue that no relevance was lost because relevance had never been there in the first place. The two groups nevertheless share the view that the conventional management accounting techniques are not relevant in meeting the needs of present day business.

Available literature indicates that Law of developing countries was transplanted from developed countries. Based on this argument we are able to conclude that management accounting practices evolved in developed countries and were later adopted by companies operating in developing economies. This raises the issue of relevance of the management accounting practices of developing countries. This research investigated whether companies operating in developing countries are using these practices and whether these practices are appropriate for these companies.

Studies of law indicate that changes in the environment have resulted in the changes in the law. This study borrows from this and argues that management accounting practices in developing countries may have changed after changes in the operating environment (globalisation and liberalisation).

The call for relevance in the field of management accounting led to the debate as to whether management accounting has changed, has not changed or should change. This research expects to contribute to this ongoing debate in the context of a developing country by investigating whether management accounting systems in developing countries have changed or have not changed during the last decade. The factors that facilitated or hindered the change were also explored. Where changes

have taken place the research explored the value of these changes to the decision making process.

Against this background the next chapter explores the limitations of the management accounting practices that were criticised by Johnson and Kaplan in 1987 when they argued that the discipline had lost relevance. We will then review the practices that have evolved/developed after this period.

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CHAPTER THREE

MANAGEMENT ACCOUNTING PRACTICES

What does change, and change rapidly, is the content of those functions and the environment in which they are to be performed. The new content—the information to be measured and communicated—and the environment are no longer responsive to the traditional accounting tools of measurement and communication. In sum this is the heart of the accounting crisis (Ghandhi, 1976).

3.1 Introduction

The objective of this chapter is to explore the limitations of the conventional management accounting practices and the limitations of the modern practices that have been suggested in literature as the way forward. The chapter also discusses the perceived benefits of the contemporary management accounting practices/techniques and then suggests a way forward for management accounting in developing countries.

3.2 Traditional management accounting practices

The traditional focus of management accounting practice has been on management control and accountability, with an emphasis on budgeting, cost control and product costing. This focus has largely been achieved through systems of responsibility accounting, which divide the business into separate areas of responsibility and monitor their performance (Scapens, 1999). At the head of each business unit there will be a manager who has the overall responsibility for the unit. The manager will have subordinates who will be responsible for the performance of the departments or functions. Hiromoto (1991) suggests two perspectives of traditional management accounting: (1) management accounting should play an information for decision making role and (2) management accounting should help obtain the optimal activities with regard to the current activities. This theme assumes a stable corporate environment when considering a company's cost or managerial accounting system (Kaplan, 1983). It focuses on efficiency rather than effectiveness.

To measure the performance of business units, financial measures which are profit and investment oriented are adopted; the most common being accounting profit and return on investment (ROI). Control is achieved through variance analysis where *ex-ante* standards of performance are compared with the *ex-post* results (actual). Explanations for both favourable and unfavourable variances are sought from the departments concerned.

The traditional management accounting practices/techniques are applied in some of the following areas of management: (1) costing, (2) planning, (3) controlling and (4) decision making. Under the traditional management accounting systems, overheads are allocated to products/services using overhead rates usually based on direct labour and/or machine hours. Where direct labour represents only a small portion of the total manufacturing cost, this may lead to inaccurate cost information and when this information is used for decision making it may lead to serious errors that can even destroy the firm. Cooper and Kaplan (1988) argue that these systems, which are based on an assumption of long production runs of a standard product with unchanging characteristics, cannot be relevant in this new dynamic environment. Despite these limitations, surveys report widespread use of these practices (Ness, 1991; Clarke, 1992; Drury and Tayles, 1997).

A common characteristic of developing countries is the scarcity of capital and the abundance of labour (Jhingan, 1993). Labour costs are also relatively low while most governments encourage labour intensive techniques so as to increase employment opportunities. Consequently, in developing countries direct labour may still represent a large proportion of the total manufacturing costs thus making the traditional cost allocation methods sound.

Pricing decisions can be made using the marginal pricing or the cost plus methods. Conventional wisdom supports the use of the marginal pricing method, which considers only the variable costs (incremental costs) to arrive at the product/service price. Proponents of this system argue that fixed cost will remain unaffected by changes in output and are therefore irrelevant for pricing decisions (Govindarajan and

Anthony, 1983). However this argument will only hold in the short run since all costs are expected to be variable in the long run (Hornigren *et al.*, 1999). Moreover an organisation should be able to recover all the production costs if it is to survive in the long run (Drury, 2000).

Surveys of pricing methods used in practice indicate widespread use of the cost plus method (Drury *et al.*, 1993; Hornigren *et al.*, 1999). However this method ignores demand and assumes that prices are solely dependent on costs (Drury and Tayles, 1995). Moreover the method will include overheads allocated to products using arbitrary cost allocation methods, more so if traditional costing systems were used. Prices arrived at using such a method are unlikely to be sustainably competitive or profitable.

The traditional budgeting system involves setting targets at the beginning of the period and comparing these with the actual performance at the end of the period (fixed or static budgets). When such budgets are used for performance evaluation they may be harmful to motivation in situations where the targets were either too low or too high. Hope and Fraser (1998) recommend the use of rolling forecasts rather than budgets to counter this limitation. Incremental budgets are also widely used in practice (Drury *et al.*, 1993). Such budgeting practices have been accused of carrying forward past inefficiencies (Drury, 2000). Zero-based budgeting has been suggested as a way of avoiding this limitation. However zero-based budgeting is said to be too costly and time consuming (Hirsch, 1998).

Under traditional management accounting, performance evaluation is based on financial measures such as variance analysis, accounting profit, return on investment, residual income, shareholder value analysis and ability to stay within the budget. ROI has been criticised on the basis that, being a ratio rather than an absolute measure, it can encourage managers to make sub-optimal decisions (Drury, 2000; Kaplan and Atkinson, 1998). Such decisions may improve the performance of the division but decrease the overall performance of the organisation. Residual income on the other hand suffers from the disadvantage of being an absolute measure, which means that it

is difficult to compare the performance of a division with that of other divisions or companies of different sizes.

In traditional management accounting only financial measures of performance are used. Since these ignore other measures like product quality, delivery innovations and flexibility they alone are not adequate to measure the long term potential of the organisation. Financial measures are accused of being short term and of concentrating more on history. Yet surveys of practice in developed countries report their wide spread use (Drury *et al.*, 1993).

In developing countries technological development is relatively low when compared to that of developed countries (Jhingan, 1993). Managers in developing countries therefore work with less sophisticated information systems and less reliable data sources than their counterparts in the developed countries. This would probably make financial measures more preferred in developing countries.

As a result of the above criticisms, a new theme of management accounting has evolved in developed countries. According to Hiromoto (1991) the elements of this new theme include: (1) A behaviour influencing focus, (2) Market driven management, (3) A dynamic approach and (4) A team oriented approach. These elements form the basis of the contemporary management accounting practices/techniques currently being advocated by the literature.

3.3 Modern management accounting practices

During the last decade, the relevance of many traditional management accounting practices and techniques has been questioned. Cooper and Kaplan (1988) and Kaplan (1988) argue that these techniques fail to provide relevant, useful and timely information about processing activities that management needs for planning and control purposes. Today's businesses are characterised by a 'continuous innovation' and internationally competitive environment hence corporate excellence depends a great deal on whether the process can be effectively managed. As a result yesterday's management accounting may have lost relevance (Hiromoto, 1991).

The call for relevance in management accounting practice saw the development of several contemporary management accounting techniques. These include Strategic Management Accounting (SMA), (Bromwich and Bhimani, 1989), Activity Based Costing (ABC), (Cooper and Kaplan, 1988,1992), the Balanced Scorecard (BSC) (Kaplan and Norton, 1992,1996), target costing (Kato, 1993) and the Just-In-Time techniques (Foster and Horngren, 1987).

The growth in spending on activities that are caused by factors other than production volume has resulted in the emergence of ABC. According to Cooper and Slugmulder (1998), ABC aims to produce an accurate picture of the costs of products and services by establishing a cause and effect relationship between the indirect costs and the broad range of cost objects, e.g. products, suppliers and customers. ABC starts by tracing overheads to the activities that consume the indirect resources and then charges consumption of those activities to the product. ABC systems are clearly superior to traditional costing systems in terms of accuracy of cost measurement (Drury, 1996).

Cooper and Kaplan (1998) reports that in an ABC system, the cost of a product is the sum of the costs of all activities that are required to manufacture and deliver the product. ABC systems are said to provide four major benefits:

- 1) More accurate product costs.
- 2) An improved understanding of the economics of production.
- 3) A picture of the economics of activities performed by the company.
- 4) Information generated can encourage companies to redesign products to use more common parts.

ABC will be able to show the products and customers that are profitable and are unwittingly used to subsidise those that are making losses (Gering, 1999). This is considered a strategic issue in management accounting since the information sought will be used in the strategic process. Such information is critical in the present day highly competitive environment. Failure to understand this type of information may result in competitors taking advantage, leading to a decrease in the firm's market

share. However as noted elsewhere in this thesis, direct labour may still represent a large proportion of the total manufacturing costs in developing countries. Consequently overhead costs would be expected to be relatively low. Under such circumstances ABC implementation may not meet the cost/benefit consideration and hence most companies would still be comfortable with simple cost allocation methods.

Chenhall and Langfield-Smith (1998) looked at the ways in which management accounting practices and management techniques combine to enhance performance under various strategic priorities. This survey, which was based on 140 manufacturing firms in Australia, found that few benefits were received from activity-based techniques, when compared to the traditional accounting techniques used in firms pursuing a differentiation strategy. It should however be noted that only a few traditional management accounting techniques were examined in the study. Moreover the sample selection was not random and hence generalisation may not be appropriate.

SMA recognises the need for management to adopt a more strategic perspective by reporting information relating to a firm's market and its competitors (Bromwich and Bhimani, 1989). The major feature of strategic management accounting is its external focus. SMA suggests ways in which accounting practices can be modified to better inform the strategy making process, a process from which the accounting function is sometimes excluded (Morgan, 1999).

Shank and Govindarajan (1993) report that traditional management accounting often adopts a focus that is largely internal to the firm. It takes a value-added perspective, which starts with the payment to suppliers and stops with the charges to customers. The key theme in this approach is to maximise the difference between purchases and sales hence missing the opportunities for exploiting linkages with suppliers and customers. In today's competitive environment such an approach is too narrow. To overcome these limitations, SMA takes a value chain perspective.

Unlike traditional management accounting, SMA adopts an outward forward-looking approach with a view to assist the organisation attain a sustainable competitive advantage. According to Bromwich and Bhimani (1994) the main themes of SMA are: (1) the need to consider the firm's comparative advantage relative to competitors, (2) the benefit for which customers are willing to pay and (3) the firm's costs. It is however important to note that there is no ideal model of SMA. SMA systems will vary between organisations to reflect the specific characteristics of the organisation.

The economies of most developing countries have now been liberalised. Companies operating in these countries are now faced with high levels of competition resulting in a decline in their market share. To survive, these companies require timely and accurate information regarding their markets, suppliers and customers. SMA would assist these companies obtain the much needed information.

Kaplan and Atkinson (1998) report that companies are now shifting from the industrial age competition to the information age. Due to the emergence of the information era, companies can no longer gain a sustainable competitive advantage by deploying new technology in physical assets such as labour and capital, which are no longer considered scarce resources. The ability of a company to mobilise and exploit its intangible assets has become far more decisive in creating the much-desired competitive advantage (Kaplan and Atkinson, 1998; Simons 2000). It should be noted that whereas it is easier for competitors to copy tangible assets, it may not be possible for them to copy intangible resources used by a company.

To fill the gap left by the financial measures of performance, Kaplan and Norton developed the Balanced Scorecard (BSC) in 1992. The BSC is a comprehensive framework that translates the company's strategic objectives into a coherent set of performance measures (Kaplan and Norton, 1996). The BSC addresses the shortcomings of financial measures of performance such as ROI, profitability and RI by including non-financial perspectives such as market share, extent of innovation and customer satisfaction measures. These focus on the financial, customer, innovation

and learning and internal business perspectives, linking the performance measures to the company's strategy.

The BSC puts strategy, structure and vision at the centre of management focus. It also emphasises an integrated combination of traditional performance measures, keeps management focused on the entire business process and helps ensure that actual current operating performance is in line with long-term strategy and customer values. The BSC communicates the multiple, linked objectives that companies must achieve to compete based on their intangible capabilities and innovations (Simons, 2000:187).

Several benefits may be realised from implementing a BSC. Initially the BSC was seen as a useful tool for performance measurement. The BSC was seen as integrating financial/non-financial, internal/external and leading/lagging information on firm performance in a coherent manner. The BSC can also play a crucial role in the strategic management process since it requires management to clarify and obtain consensus on the strategic objectives of the firm. The BSC can also be used to assist in corporate restructuring as firms move away from a traditional hierarchical structure to flatter, team based organisations. The BSC can also play a role in the investment appraisal process since it provides managers with a mechanism to incorporate the strategic aspects of the investment into the appraisal process.

Most developing countries are still faced with the problem of low levels of corporate governance. This increases the need for control in their organisations. Due to the causal link that BSC offers between the company's strategy and its performance measures, it may be used as a tool to minimise this problem in developing countries. However the shortage of skilled/trained human resources in developing countries may result in a situation where techniques like BSC are wrongly implemented. Situations may arise where such techniques are said to have been implemented but do not exist in reality. This research tried to establish whether such situations exist and to suggest remedial action where necessary so that organisations would be able to obtain better benefits from BSC.

According to Drury (2000) JIT involves a continuous commitment to the pursuit of excellence in all facets of the manufacturing systems design and operations. JIT seeks to achieve the following goals: (1) elimination of non-value adding activities, (2) zero inventory, (3) zero defects, (4) batch sizes of one, (5) zero breakdowns and (6) 100% on-time delivery service. JIT focuses on reducing total costs as a whole and not individual costs or departmental costs. The system also aims at developing accurate product costs information thus enabling better pricing decisions. This is required in a competitive market environment.

Drury (2000) argues that since the above goals represent perfection they are unlikely to be achieved in practice. However a survey by O'Dea and Clarke (1993) reported that 10 out of the 16 companies studied had introduced JIT with the following objectives: (1) the elimination of wasteful activities, (2) the reduction of inventories and (3) on-time delivery to customers.

In developing countries where suppliers are located far away from consumers and where most of the countries suffer from the problem of poor infrastructure it may not be possible to achieve the ideal goals of 100% on-time delivery and zero inventory. However the goals of JIT offer targets and may therefore create a climate of continuous improvements and striving for excellence.

Target costing refers to a collection of activities, which attempt to structure the cost of a profitable product during the design and development stage of a new or modified product (Tunaka, 1993). Guilding *et al* (2000) defines target costing as the process where a product is designed to satisfy a customer need and a target cost is determined for the product. The price volume point provides the revenue estimates where the new products' target market penetration is achieved. These estimates are obtained from market analysis based on the product attributes and features. Given a set of desired features and allowable costs, designers and engineers attempt to design a product and the production process under the allowable costs.

Organisations may use target costing to focus attention on and to manage the process of product and process design. Kaplan and Atkinson (1998) argue that since most of the opportunities to improve performance are set at the design stage, target costing is particularly important as a tool to improve the organisation's profitability. It may therefore be argued that target costing eliminates most of the problems posed by the traditional pricing methods and is expected to continue gaining popularity both in the western world and in developing countries.

There is not much evidence on the management accounting practices used by companies operating in developing countries. For example Shotter *et al* (2002) studied the relevance of management accounting education in South African tertiary institutions. They found a wide gap between what is taught at tertiary institutions and what is practised in the field of management accounting. Whereas the study may have captured the scope of management accounting education in South Africa, the same cannot be said about management accounting practices. Firstly, the study used consulting firms to represent practitioners. For a survey of practice to be conclusive, information ought to be gathered from the practitioners themselves. Secondly, the survey questionnaire collected information on the level of knowledge required by education and practice. No efforts were made to collect information on whether the said practices were being used by practitioners. Information is needed on whether the management accounting techniques taught in tertiary institutions are being used or not and the extent/degree of use.

There are a few other studies that have dealt with specific management accounting practices. For example Vally (1998) was limited to the domestic transfer pricing methods used by large South African industrial companies. He found a significant relationship between the size of the company and the transfer pricing method used by South African firms. Taylor *et al* (2001) compared the use of performance measures in Australia (a developed country) with Mauritius (a developing country). He found that chief executive officers in Australia relied more frequently on financial measures whereas those in Mauritius relied more on non-financial measures. These findings are not consistent with the literature, which predicts more use of non-financial measures

in developed countries, since information on these measures is more readily available than is the case with developing countries. One of the reasons that may be advanced to explain this inconsistency would be that whereas Australia experiences an Anglo-based culture, the culture in Mauritius is mainly French based. The use of non-financial measures in Mauritius may therefore be attributed to their culture. Indeed, The idea of the BSC is said to have originated from France before the Americans modified it.

3.4 Summary and conclusions

Traditional management accounting practices have been accused of being inadequate to meet the information needs of today's business. There is therefore a need to develop new management accounting approaches that can support the needs of the present day business manager. This may be achieved by the modification of the traditional management accounting techniques, the adoption of the modern management accounting techniques or both. Surveys of practice in developed countries have however reported little application of the modern management accounting techniques and the widespread continued use of the traditional practices. Some modern management accounting practices like ABC, ABB and ZBB have been accused of being too costly and time consuming to implement. Practitioners have argued that the cost/benefit considerations have not justified their use and hence the continued use of the traditional management accounting techniques. The question we may pose here is; *Do managers who continue using the traditional management techniques interpret their results in the same way as those who used them in the earlier parts of the 20th century?*

It may be argued that experience high levels of perceived environmental uncertainty creates a greater need for more sophisticated management accounting systems and reports so as to reduce uncertainty and hence improve decision making (Mia and Chenhall, 1994). Modern management accounting techniques may be able to assist in producing such reports. However each contemporary method should always be assessed from a cost/benefit consideration. For example if direct labour still comprises a high proportion of the total manufacturing costs, the implementation of ABC may

not be necessary since direct labour can still be used as a cost allocation base. It has been pointed out earlier in this thesis that organisations operate in a rapidly changing environment and have to respond to these changes if they are to survive. In this regard management accounting practices used by these organisations must have been changed to reflect the environmental changes such as liberalisation, introduction of advanced manufacturing techniques, globalisation, short product life cycles and the privatisation of the state owned corporations in developing countries. The process of change may have taken either one or a combination of the following forms:

- 1) The implementation of the modern accounting techniques and the abandonment of the traditional management accounting techniques.
- 2) The use of the modern management accounting techniques together with the traditional management accounting techniques.
- 3) Continued use of the traditional management accounting techniques but interpreting the results obtained in such a way as to reflect the changes in the information needs of the company.

The next chapter looks at the theoretical framework, which was used to analyse the data with a view to answer the research questions.

CHAPTER FOUR

THEORETICAL FRAMEWORK

The directors of such (joint stock) companies, however, being the managers rather of other people's money than their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own. Like the stewards of a rich man, they are apt to consider attention to small matters as not for their master's honour, and very easily give themselves a dispensation from having it. Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company.

Adam Smith, The Wealth of Nations, 1776.

4.1 Introduction

This chapter explains the theories on which the research relied to answer the research questions. Although the chapter does not deal with the theories in great depth, it demonstrates how agency theory creates the need for management accounting in an organisation and how contingency theory can be used to explain differences in management accounting practices of firms operating in different economic and political environments. Section 4.4 discusses the institutional framework that was used to study the change process while the last section discusses the neo-classical theory and its relevance to value measurement. This explains how the value of information derived from a management accounting system can be measured.

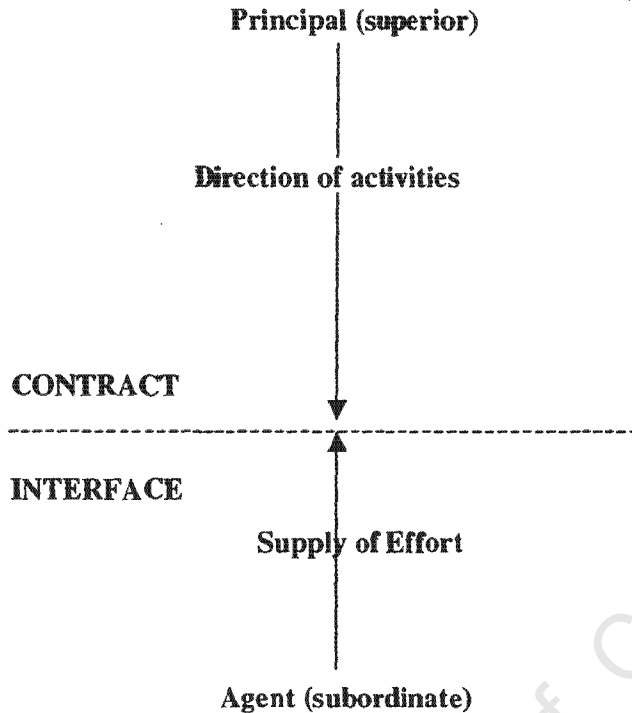
According to Belkaoui (1980) management accounting is thought to rest on elements provided by various theories of organisations rather than on a single theory since none provides an entirely adequate explanation on its own. This research therefore uses a theory-triangulation approach to answer the research questions.

4.2 The agency theory

The agency theory assumes that there exists a contractual relationship between members of a firm. It recognises the existence of two groups of people; principals or superiors and agents or subordinates. The principals will delegate decision making authority to the agents and expect them to perform certain functions in return for a reward. Both the principals and the agents are assumed to be rational economic persons motivated solely by self-interest but may differ with respect to preferences, beliefs and information (Jensen and Meckling, 1976). The principal/agent relationship can exist throughout any organisation and usually starts from the shareholder-director and ends with the supervisor-shop floor worker (Figure 4.1). In an organisation context, which involves uncertainty and asymmetric information, the agent's actions may not always be directed to the best interests of the principal. Agents' pursuit of their self-interest instead of those of the principal is what is called the agency problem (Jensen and Meckling, 1976). To counter this behaviour, the principal may monitor the agents' performance through an accounting information system. The owner can also limit such aberrant behaviour by incurring auditing, accounting and monitoring costs and by establishing, also at a cost, an appropriate incentive scheme (Jensen and Meckling, 1976).

According to Jensen (1998), agency theory seeks to understand: (1) how to assign decision making responsibility to agents, (2) how to monitor agents' behaviour, and (3) how to design incentives that cause agents to behave in a way that enhances the principal's interests. Agency theory is built around the key ideas of self-interest, adverse selection, moral hazard, signalling, incentives, information asymmetry and most persuasively, the contract.

Figure 4.1: The principal agent relationship



(Source: Mitchell, Reid and Smith, 1998:31)

Agency theory is based on several assumptions;

- 1) Individuals are assumed to be rational and to have unlimited computational ability. They can anticipate and assess the probability of all possible future contingencies.
- 2) The contracts are assumed to be costless and accurately enforceable by courts. The contracts are expected to be comprehensive and complete in the sense that for each verifiable event, they specify the actions to be taken by the contracting parties. However this assumption may not hold in most developing countries where judicial systems still lack the necessary resources to act efficiently.
- 3) Both principals and agents are motivated solely by self-interest.
- 4) The agent is assumed to have private information to which the principal cannot gain access without cost.

- 5) The agent is usually assumed to be work averse and risk averse (Baiman, 1990:343).

Baiman (1990) claims that the efficiency loss from agency problems creates the demand for management accounting procedures and processes within the firm. Examples of such procedures and processes include monitoring systems, variance investigation systems, budgeting systems, cost allocation systems and transfer pricing systems. The principal/agent model provides a coherent and useful framework to view managerial accounting procedures and pose managerial accounting questions. One would therefore expect to find a managerial accounting procedure only in the context in which individuals would benefit from its use.

In an organisation the demand for management accounting therefore lies in the need to monitor and control subordinates, to assess their performance and provide a basis of computing their remuneration. Agency theory offers an elegant way to think about management accounting and control systems in an organisation. In looking at the management accounting practices in the sampled organisations, this research recognises the reporting structures in organisations where top managers require monitoring of the activities of subordinates, hence the need for a management accounting system.

According to Jensen and Meckling (1976:311) a firm may be viewed as a nexus around which interested parties interact with respect to inputs and outputs, each trying to maximize their own utility (self interest). Consequently a firm may be viewed as a focal point around which the conflicting objectives of various individuals, each representing their own interests, are brought together. To maximize the value of the firm there arises a need to bring the conflicting objectives of the participants into equilibrium (Uliana, 1991). Developing countries suffer from the problem of low corporate governance when compared to developed countries mainly resulting from the lack of skilled manpower (Jhingan, 1993). The conflicting objectives discussed above are therefore likely to be more prevalent in developing countries thus necessitating a greater need for control.

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Stated simply, agency theory has its roots in the relationship between the owners (principals) and managers (agents). Since this relationship is mainly based on self-interest, agency conflicts may arise when managers who initiate decisions are not the major beneficiaries of such decisions (Fama and Jensen, 1983a: 304). According to Jensen and Smith (1985) the conflict between owners and managers may be generalised into three major areas:

- 1) **Choice of effort-** an increase in the effort by the manager would increase the value of the firm but this constitutes a cost to the manager. A manager would therefore increase his/her efforts only if he/she expects to obtain more benefits than the costs of his/her effort.
- 2) **Differential risk exposure-** in terms of human capital, managers have made a significant investment in the firm unlike shareholders who usually operate a diversified portfolio. Managers are therefore exposed to total risk, whereas shareholders are only exposed to market or portfolio risk.
- 3) **Differential time horizon-** the manager's interest in the firm is limited to his period with the firm whereas the shareholder's interest is indefinite. In developed countries like Japan the manager's horizon is almost indefinite, as most firms tend to engage managers on a lifetime basis. However in developing countries managers' time horizons tend to be relatively short. There is a shortage of skilled manpower in most developing countries hence a high demand for managers. When the manager's time horizon is short he is likely to sacrifice the long-term goals of the firm in favour of short-term goals. This will reduce the value of the firm. The use of non-financial measures of performance (BSC) may therefore be of a greater need in developing countries than in the developed world.

Despite the contributions of agency theory to management accounting, it has some limitations. The principal/agent model typically ignores the effect of the capital market by assuming a single owner rather than a group of owners and debt holders

(Baiman, 1990:345). The theory also leaves no room for trust and fairness, which are also claimed to influence behaviour.

The agency theory concentrates on problems encountered by the owner when the manager relies on asymmetrical information to cheat and shrink (Mackintosh, 1994:36). Asymmetric information is also not a one-way street as is assumed by agency theory. Owners would also have access to private information, which they would use in negotiating contracts.

However according to Baiman (1990), the above criticisms are less compelling if we view the principal-agent model as a framework for analysing issues and highlighting problems which arise and must be considered in applying managerial accounting procedures to real world situations. Consequently agency theory offers insights into some of the tough issues and difficult problems involved in the design of management accounting systems.

4.3 The contingency theory

The contingency theory provides an explanation of why management accounting systems vary between firms operating in different countries (Otley, 1980; Innes and Mitchell, 1990; Fisher, 1995 and Drury, 2000).

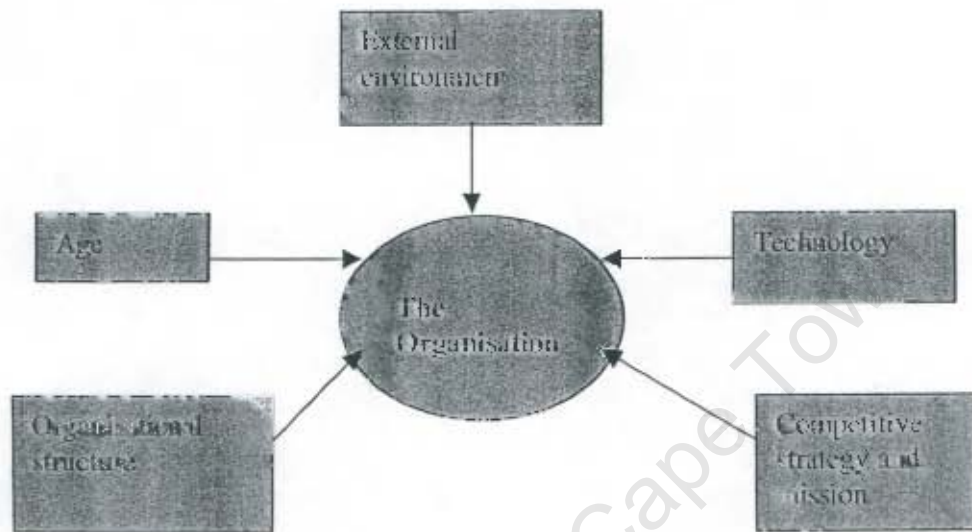
According to Otley, (1980:413);

“The contingency theory of management accounting is based on the premise that there is no universally appropriate accounting system applicable to all organisations in all circumstances. Rather a contingency theory attempts to identify specific aspects of an accounting system that are associated with certain defined circumstances and to demonstrate an appropriate matching.”

According to Innes and Mitchell (1990) and Fisher (1995), the specific circumstances influencing management accounting comprise a set of contingent variables which may include but are not limited to: (1) the external environment, (2) the technology, (3) the organisation structure, (4) the age and (5) the firm's competitive strategy and mission.

These contingencies are regarded as important determinants of the design of the most appropriate management accounting system (Figure 4.2).

Figure 4.2: Contingency framework



An understanding of practice therefore lies in the identification of the set of influential structural characteristics within which management accounting is designed and used. Drury (1996) draws attention to the fact that the contingency theory, which is both descriptive (in explaining why organisations have adopted a particular system) and prescriptive (in explaining the type of accounting system that ought to be operated in a particular set of circumstances), provides a theoretical framework that may help to explain existing practices. However contingency theory literature fails to point out whether the so-called contingency variables affect management accounting directly or through the organisational structure. This research aims at providing information that may be used to fill this gap.

The external environment consists of certain factors, which may affect the organisation, but over which the organisation has little or no control. These factors may include economic factors, political/legal factors, and social/cultural factors. These factors exert influence on an organisation and may shape its structure and process, including its information systems (Ming-te and Farrel, 1990). When studying

information systems development in developing countries Ming-te and Farrel (1990) identified six major macro-economic environmental differences between developing and developed countries. These include: (1) economic and social conditions, (2) national infrastructure conditions, (3) education conditions, (4) political/legal conditions, (5) cultural conditions and (6) management practices.

Since the Ming-te and Farrel study, technology has developed significantly, notably the widespread use of the Internet. Most of this technology has evolved from developed countries. A wide technological gap between developed and developing countries is expected. We therefore add technological differences to the above list.

In developing countries wage levels and commodity prices are lower than those of developed countries. However computer costs are much higher due to importation costs. The information processing systems are therefore different. This difference creates the need for different management accounting systems. Most developing countries still suffer from poor infrastructure components such as telecommunications, transportation networks and unreliable power supply. Some contemporary management accounting techniques like JIT may not be practical under such conditions.

Several educational/professional differences between developed and developing countries exist in the field of management accounting. This may be attributed to the fact that, unlike in the developed countries, developing countries are yet to establish management accounting bodies that train management accountants. Presently most of the management accountant professionals in developing countries are actually financial accountants and other professionals such as engineers.

Until recently, most of the developing countries operated under state controlled economies. Management accounting systems under such controlled conditions are expected to be different from those in the free economies of the developed countries. During the last decade however, most of the developing countries have opened up their economies. Companies operating in these countries now require quality and

timely information and hence the need to change their management accounting systems. Waterhouse and Libby (1996) have provided evidence that managers faced with high levels of competition may ask for more and different types of information before making crucial decisions.

A wide technological gap exists between developed and developing countries (Ming-te and Farrel, 1990). Since technology usually dictates the manufacturing process and hence the information needs of the organisation, the two worlds are expected to have different types of management accounting systems. There is also evidence to suggest that the structure of the organisation affects the manner in which budgetary information is used by an organisation (Drury, 2000). Innes and Mitchell (1995) also report that an important factor limiting the implementation of more sophisticated management accounting systems is their prohibitive costs. Since large organisations have more resources to develop new management accounting techniques, their systems are expected to be different from those of smaller companies. Companies operating in developing countries have lower resources at their disposal (in view of the economies in which they operate) than those operating in developed countries. Ming-te and Farrel (1990) report that companies operating in developing countries experience a lower level of decentralisation than those of the developed world. Damanpour (1991), quoted by Waterhouse and Libby (1996) reports that there is a positive relationship between decentralisation and management accounting change.

Organisations operate in a wider setting; the macro environment (Otley and Berry, 1980). Where the macro conditions are different (e.g. between developed countries and developing countries), the management accounting practices are expected to be different and where these conditions have changed over time the management accounting practices are expected to have changed.

4.4 The institutional framework

The Institutional Framework (IF) is based on the Old Institution Economics (OIE) (Scapens, 1994, 1999). OIE regards management accounting systems and practices as organisational rules and routines. According to Burns and Scapens (1999) rules are

the formally recognised ways in which things should be done while routines are the way in which things are actually done. Burns and Scapens (1999, 2000) argue that when looking at management accounting, rules may be seen as the formal management accounting systems set out in the organisation manual while routines are the management accounting practices actually in use.

The starting point for an institutional framework is the recognition that management accounting practices can both shape and/or be shaped by the institution which governs organisational activity. Citing Hamilton (1932: 84) Burns and Scapens (1999) define an institution as “a way of thought or action of some prevalence and permanence, which is embedded in the habits of a group or the customs of people”. Ordinarily there can be a two-way relationship between rules and routines; rules may be established and, through their implementation, routines will emerge. However under some circumstances routines may emerge and later be formalised (rules). This research therefore, seeks to determine how management accounting (as rules and routines) has changed, what features have facilitated or hindered this change process and the consequences that may have resulted from the failure to change or from changing too slowly.

4.4.1 Nature of institutional change

OIE describes three dichotomies of classifying and distinguishing between different types of change process. These include:

1. Formal versus informal change
2. Revolutionary versus evolutionary change
3. Regressive versus progressive change

Formal changes occur by conscious design, usually through the actions of a powerful individual or group (Burns and Scapens, 1999). Informal change, however, occurs tacitly; e.g. as new routines adapt over time to changing operating conditions. Formal management accounting change will occur mainly through the implementation of new management accounting techniques (rules) e.g. the introduction of ABC in an organisation.

Burns and Scapens (1999), relate formal and informal change to the difference between intentional and unintentional change. This distinction focuses attention on; change, which follows new rules (intentional change), and change, which evolves at a tacit, subconscious, level (unintentional). The process of management accounting change is however, likely to incorporate both types of change. Consequently in studying management accounting change, there is a need to explore the informal process and unintentional change as well as the formal process and intentional change. Burns and Scapens (1999) argue that studies of formally planned changes in management accounting systems are likely to be comparatively easy to conduct, while studies of informal process of change are likely to be more difficult.

Revolutionary change involves a fundamental disruption, while evolutionary change is incremental with only minor disruption to existing routines and institutions. For example when routines are widely accepted in the organisation they are likely to influence organisational activity and are likely to be quite resistant to change. A process of this nature in management accounting may be classified as evolutionary since it changes over time and comprises both random elements and inertial forces, which provide continuity over time.

When looking at regressive versus progressive change, Bush (1987) cited by Burns and Scapens (1999) started by distinguishing 'ceremonial' behaviour and instrumental behaviour. He argues that ceremonial behaviour emerges from a value system which discriminates between human beings and preserves existing power structures; whereas instrumental behaviour emerges from a value system which applies the best available knowledge and technology to problems and seeks to enhance relationships. Bush (1987) then adopted the term regressive change to describe behaviour, which reinforces ceremonial dominance, thereby restricting institutional change and adopted the term progressive change to describe the displacement of ceremonial behaviour by instrumental behaviour.

This research focuses on all the above types of change. It is primarily concerned with changes within the organisation (intra-organisation process of change) but does not ignore the broader (extra-organisational) dimensions of change. Both dimensions are necessary so that conclusions can be drawn as to whether or not management accounting practices have changed in developing countries during the last decade.

4.5 Neo-classical economic theory

When exploring the value of management accounting information to the decision making process the research will rely on the neo-classical economical theory (Hardwick *et al.*, 1990; Burchell *et al.*, 1980 and Cooper, 1990). This theory is based on the modern theory of the firm, which states that the main objective of a business firm is to maximize profits. A business firm will maximize profits at that point where marginal costs equal marginal revenue. This theory is consistent with the cost benefit theme used in academic literature to justify the gulf between the theory and practice of management accounting (Scapens, 1983 and Drury 1996). Scapens (1983) argues that the insights into the costs and benefits of accounting systems obtained through information economics has provided the basis for several researchers to compare simple and complex management accounting techniques. Horngren (1986) cited by Drury (1996) argues that the cost benefit theme is the foundation for judging whether cost accounting systems should be revised.

The neo-classical theory is based on several assumptions which include: 1) rational decision making, 2) utility or profit maximization as an incentive to action, 3) an analysis based on stationary circumstances, 4) minimum government intervention 5) free competition and 6) perfect information, freely available at no cost.

Unlike in the developed countries, most developing countries' economies are still being controlled by the state. Even where the economies have been liberalised some economic sectors are still under government control e.g. foreign exchange regulations in South Africa and interest and price controls in Zimbabwe. The assumptions of free competition and minimum government intervention may not hold in most developing countries.

Unlike the economies of developed countries, which are relatively stable, most developing countries economies are highly unstable. Consequently it may be unrealistic to make the assumption of stationary circumstances in developing countries.

According to Drury (2000), the Neo-classical economic theory assumes that management accounting will assist management in making rational choices based on well-defined criteria. Drury (2000) draws attention to the fact that the assumption of rational economic decision making does not always reflect actual real world behaviour. To address this limitation, the value of management accounting information was studied by analysing other 'roles' or 'purposes' of management accounting. These according to Kelly and Pratt (1992) may include: 1) a symbolic purpose, 2) a political purpose, 3) a legitimate/ retrospective rationalisation purpose and 4) a repressive/ dominating/ ideological purpose.

4.6 Summary and conclusions

The contractual relationship between members of the firm creates the need for a management accounting system. On the other hand the environment in which an organisation operates shapes the structure and processes of an organisation. Different environmental conditions may create the need for different types of management accounting systems.

The environment in which an organisation operates largely dictates the management accounting systems requirements. Companies in developing countries operate in an environment that is characterised by low levels of technological development, shortage of skilled/trained human resources, shortage of capital and relatively low labour costs. The management accounting systems are therefore expected to be different from those of companies operating in developed countries.

To understand the process of management accounting change, we recognised the institutional context, both within the organisation (rules, routines and institutions) and outside (social, economic and political institutions). These institutions change over

time and their change has a direct effect on the management accounting practices of organisations.

The main objective of a business firm is to maximise profits. Any change in the management accounting system should therefore pass the cost/benefit test. The three theories discussed in this chapter shed some light on how the data gathered in the research will be used to answer the following research questions:

- What are the management accounting practices in South Africa?
- Are management accounting practices borrowed directly from developed countries appropriate for companies operating in an emerging economy-South Africa?
- Have management accounting practices in South Africa changed significantly during the last decade?
- What factors facilitate and/or hinder management accounting change in South Africa?
- Have management accounting changes in South Africa added value to the decision making process?

The next chapter explains at how data was collected and analysed.

CHAPTER FIVE

RESEARCH METHODOLOGY

In Social sciences As in any other scientific discipline Knowledge is advanced through the careful collection, proper analysis and competent interpretation of research data. However as Newcomb Theodore noted many years ago, no research findings are better than the methods used to obtain them (Chadwick, et al, 1984:2).

5.1 Introduction

No detailed systematic enquiry has been done to establish the management accounting practices/techniques and the changes that have been taking place in the field of management accounting in developing countries. Yet companies in the developing world, like those in the western world, require accurate and timely information if they are to survive in the current global competition. This was the subject of chapter one in this thesis. Chapters two and three reviewed the literature on management accounting development in developed countries. The effect of this development on developing countries was discussed. Chapter four discussed the theories on which the research relied to answer the research questions. This chapter addresses the methods used to collect and analyse the data and the limitations experienced in the study.

5.2 Research design

This is an exploratory research since very little prior information or knowledge is available on the management accounting practices of developing countries. To achieve the thesis objectives, a multiple research design (survey and case study) was used. According to Atkinson *et al* (1997) and Shields (1997), multiple research methods have synergistic value since the research benefits are more than the summations of the benefits of the methods used. The survey method was used to collect data on the management accounting practices and the changes that have taken place during the last decade. A follow-up was later undertaken by way of case studies to establish how and why the changes took place, the factors that impede management

accounting change and the consequences of either not changing or changing too slowly (with respect to observed environmental changes).

5.2.1 Justification of the multi-research method

The first part of the study was motivated by the desire to enrich and extend our understanding of how management accounting is practiced in the context of a developing country. To achieve this goal a sufficiently large sample was required in order to enable a generalisation to be made on the wider population. The survey method is the most appropriate in this case since it provides a time and cost effective manner of collecting large quantities of "generalisable" data and also in a manner that avoids interviewer bias (Roberts 1999).

According to Roberts (1999) the survey method has been criticized on the following grounds:

- 1) Survey research just collects masses of data and provides nothing of theoretical value.
- 2) Survey research is too restricted because of the limitations of highly structured questionnaires.
- 3) Data collected from surveys contains so much measurement error that it is quite unreliable and validity is extremely low.
- 4) Surveys cannot establish causal relations between variables.

Despite the above limitations, surveys are still the most common data collection methods used (Shields, 1997). Several steps have been taken in this research to address the above limitations. Firstly, the use of questions that give a clear picture of the data that is being collected and its importance to the study, addressed the first criticism. The use of a semi-structured questionnaire and multi-item scales rather than single item scales addressed the second and third criticisms respectively. Finally the

data collected was carefully analysed so that causal relations between variables could be established. Where possible the research findings were compared with those of developed countries and reasons for their differences/similarities explored.

The second part of the research examines management accounting change and the value added by the information generated by this change to the decision making process. An in-depth understanding of whether management accounting has changed and how and why it has changed in the context of a developing country was the main motivating factor in this phase. According to Yin (1994), how and why questions are more likely to be answered by way of case study. However case studies provide little or no basis for scientific generalisation. This limitation may be overcome by conducting multi-case studies, which should follow a replication and not a sampling logic. The replication logic is analogous to that of multiple experiments. Here evidence is obtained from one case/organisation and then case studies are carried out in other organisations with a view to testing the original theory. If the same results, which are consistent with theory are obtained in more than one case, then replication is said to have taken place. This enhances theory building and, where the theory has indicated that the same results should occur, then analytical generalisation can be done.

According to Shields (1997) the discussion on whether management accounting has changed or not would best be settled by way of field studies (also referred to as case studies). Field research enables the researcher to clarify any interpretive difficulties with respondents but this clarification in the field may lead to interviewer bias (Abernethy *et al.*, 1999). This research attempted to eliminate this shortcoming by the use of an interview guide suggested by Lillis (1999). Moreover interviewees were allowed to ask questions during the interview but no suggestions were made by the researcher on the comments made by the interviewees.

Data triangulation (multi-research methods) is well supported in academic literature. According to Abernethy *et al* (1999) the use of multi methods may provide a means not only of achieving the objectives of generalisability and limiting interviewer bias but also of enhancing the meaningfulness of the research to those completing the survey. Atkinson *et al* (1997) also point out that, opportunities to expand our understanding of management accounting phenomena are created when researchers use synergy that exists among the research methods. Hoque and Allam (1999) have used data-triangulation successfully in their Australian based studies.

5.3 The survey

A survey means 'to look' or 'to see' over and beyond the casual glance or the superficial observation. This method will be used to collect data on the management accounting practices/techniques used by listed companies in South Africa and the changes that have taken place in the field of management accounting during the last decade.

5.3.1 Population of the study

The population of this study consisted of all companies listed on the Johannesburg Stock Exchange (JSE) as at 31.12.2000. Unlisted companies were not included in the survey mainly due to the problems expected in obtaining information from such companies. This population was chosen in view of the following:

- Information about these companies is readily available both at the Registrar of companies and at the Stock Exchange.
- Listed companies release information more readily than non-quoted companies.
- Information received from publicly quoted companies is considered more reliable.
- Publicly quoted companies cover almost all sectors of the South African economy.

5.3.2 Sampling

According to Lillis (1999) a study of this nature requires a sufficiently large sample. A large sample will enable the researcher to observe patterns across firms and to conduct simple inferential statistical evaluation on the results. Despite this argument,

the sample size was limited because the study design required a semi-structured questionnaire, which was administered by a single researcher.

A sample size of thirty and above is considered statistically large. According to Emory (1976), a sample size can be determined in a number of ways; 1) By choosing a sample size on a judgemental basis and then determining how much precision we secure, and 2) By determining the acceptable degree of precision and from that determining the necessary size of the sample. This research adopted the latter approach.

For very large populations the following formula may be used to determine the sample size (Hammond and McCullagh, 1978; Emory, 1976).

$$n = z^2 \partial^2 / e^2$$

where : n is the required sample size

∂ is the assumed standard deviation

z is normal deviation from the mean under an assumed level of reliability

e is the margin of error at the specified level of confidence.

It is assumed that the characteristics of listed companies are normally distributed around a given mean. The assumed level of reliability is 95% and lies within a range of the true value +/- 0.3. Hence the standard error of the mean (e) is equal to 0.15 (0.3/1.96). If the assumed standard deviation is 1.3 the size of the sample can be calculated as follows:

$$\begin{aligned} n &= 1.96^2 * 1.3^2 / 0.15^2 \\ &\approx 290 \end{aligned}$$

The above sample size was compared with a table provided by Fitz-Gibbon and Morris (1978: 158). According to this table, the appropriate sample size for a population of 652 (number of listed companies as at 31-12-2000) should be 242 companies, which compares favourably with the computed figure. Consequently a sample of 300 was selected from the population. Vally (1998) used a sample of 279 in

his study of domestic transfer pricing methods of large listed South African manufacturing firms.

A stratified random sampling method was used to select the sample so that all the sectors of the economy could get adequate representation. The sampling method enhanced the external validity of the data since probability sampling allows inferences to be made on the population. Being able to generalise or extrapolate from a specific data set to the target population or other populations is a necessary attribute of any piece of empirical research (Abernethy *et al.*, 1999).

5.3.3 Data collection

Primary data was used for this research since secondary data was not available. Even if secondary data were available it would not be appropriate since part of the study focused on perception.

Data was collected through a semi-structured questionnaire (Appendix 3). The questionnaire was based on available literature and discussions with management accounting academicians and practitioners. The companies' physical locations and telephone numbers were established using the 2001 telephone directory, the Web-site, Facts Investors Guide, and the information available at the Stock Exchange. The questionnaires were administered through the drop and pick-up method for those companies with their Head Office in Cape Town. For companies with Head Offices outside Cape Town, the questionnaire, together with a self addressed stamped envelope, was sent through the post. Telephone and email follow-ups as well as personal visits were later made to explain or clarify issues relating to the questionnaire.

5.3.4 Data analysis

The data was analysed using descriptive statistics, tables, percentages, proportions, means, total score and averages. The five point Likert scale was used to convert qualitative data collected on the changes that have taken place in management accounting systems and that relating to the economic importance of management

accounting information to quantitative data. Studies which have efficiently used this method of data analysis, to establish the extent of management accounting use of quantitative techniques in UK and USA based firms include; Scapens and Sale (1985), Drury *et al* (1993), Lapsley (1986), and Coulthurst and McIntyre (1986). Descriptive statistics have also been used successively by Muthamia (1990), Minja (1995), Osewe (1998) and Waweru (1999) in Kenyan based studies. In South Africa, Uliana (1985) and Vally (1998) have also used descriptive statistics.

Internal consistency of the multi-item scales was analysed using Cronbach's alpha. Although there is no agreement over the minimally acceptable level for internal consistency reliability, low reliability coefficients would indicate that the items do not belong to the same conceptual domain (Bowling, 1997:132). According to available literature (Sekaran, 1992; Chenhall and Langfield-Smith, 1998; Taylor *et al.*, 2001), alpha values of between 0.8 and 1 are considered good, while values between 0.5 and 0.8 are considered acceptable. Values below 0.5 are not considered good representations of reliability of the measures being tested.

The study attempted to establish whether certain attributes of the respondents (size, age and industrial clarification) determined the management accounting practices used by the organisation. Chi-square and regression analysis was used to test for significant relationship between the attributes of the respondents and the findings on the management accounting practices. Chi-square tests require that the expected frequencies in each cell should not be too small (Siegel, 1956). A decision for the use of chi-square should be guided by the following considerations:

- 1) For contingency tables with degree of freedom (df) =1 then;
 - a) When $N > 40$, use chi-square corrected for continuity.
 - b) When N is between 20 and 40 chi-square may be used only if all expected frequencies are 5 or more.
 - c) When $N < 20$ use Fisher's exact test.
- 2) For contingency table with $df > 1$ the chi-square test may be used if fewer than 20% of the cells have an expected frequency of less than 5 and if no cell has an expected frequency of less than one. If this condition is not met, the

researcher should consider combining adjacent categories in order to increase the expected frequencies in the various cells. Alternatively one should use the Fisher's exact test (Siegel, 1956:110; Robson, 1994). In this study the Fisher's exact test has been used to test for significant relationships where the data does not meet the requirements of the Chi Square test.

Further statistical tests were carried out to test whether the proportions calculated on the importance/use of the management accounting practices are statistically different. In this study, the two-way ANOVA, Z-test and t-tests were used. These are parametric tests and their application presumes four main underlying assumptions about the data:

- 1) The population distributions from which the samples are drawn are normally distributed.
- 2) The observations are independent.
- 3) The measurements are made on an interval or ratio scale.
- 4) There is homogeneity of the variances.

According to Robson (1994), parametric tests are more efficient in the sense that they will detect a significant difference with a smaller sample size than the corresponding non-parametric tests; that it is possible to carry out a greater range and variety of tests with them and that they are robust i.e. violations of the assumptions on which they are based e.g. about the normality of the distribution from which the data samples are drawn have little or no effect on the results produced. He recommends the use of parametric tests unless the data is obviously non-normal or in the form of ranks. In this study the data is considered normal and continuous hence the use of parametric tests.

5.4 Case studies

A case study is an empirical enquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between the phenomena and context are not clearly evident (Yin, 1994). Case studies were important in the second phase of the research so that we could gain an in-depth understanding of how and why management accounting has changed. A comparative advantage of case

study research is to investigate the presence or absence of management accounting in organisations (Shields, 1997). A researcher is therefore able to investigate settings in which respondents claim to be using certain management accounting techniques but on investigation they are found not to be doing so. For example it is easy for a firm to say that they have implemented the BSC just because they are using a group of non-financial performance measures.

5.4.1 Sampling

A total of seven companies were selected from the respondents of the survey for an in-depth analysis. A judgmental sampling method was adopted to select only those companies that are considered large and successful. Large and financially stable companies are expected to utilise most of the management accounting practices. They are also expected to change these practices as their operating environment changes since they possess the required resources. Kaplan (1998) argues that if successful companies continue to use certain management accounting practices then these practices must be noble and should not be discarded. It is however noted that the selection method could have resulted in a sampling bias since poorly performing companies were not represented. However our interest was mainly in companies in which all the management accounting practices were expected to be present.

Two companies refused to participate in the study citing confidentiality of the information and lack of time as reasons. A sample of five companies was however considered adequate. According to Yin (1994:50), the selection of the number of replications depends upon the certainty desired in the results. For example if the issue at hand does not demand an excessive degree of certainty two replications could be adequate. However if a high degree of certainty is desired five or more replications may be necessary. In this study five replications were chosen since a relatively high degree of certainty was desired.

5.4.2 Data collection

A good case study should use as many sources of evidence as possible. In this research three sources of evidence suggested by Yin (1994: 80) were used. These

were: 1) documentation, 2) interview, and 3) archival records. During the first stage of data collection, the researcher reviewed any publicly available information relating to the company under study. In this case the company's published accounts and the company's information on the Internet, Stock exchange and in McGregor's *Who Owns Who* (1999, 2000) reports were perused.

The second stage involved visiting the selected companies and having a detailed discussion with the management accountant based at the company's head office. Where the company did not have the position of a management accountant, the finance director or the finance manager were interviewed. With the permission of those in charge, the researcher also reviewed the main reports prepared by the management accounting department. Examples of the reports reviewed include; the organisation chart, quality report, budgets, competitor's reports, market survey reports etc. Broad questions (Appendix 5) that were to be asked during the interviews were sent well in advance to the proposed interviewees to allow them time to prepare. These questions were divided into the three areas covering three of the five research questions. They covered:

- 1) The management accounting practices and the changes that have taken place within the organisation during the last decade.
- 2) The factors that are considered to have hindered or facilitated the change.
- 3) The perceived benefits that may be directly attributed to these changes.

Each section contained a series of general questions and potential probes that were used to explore the theme. Semi-structured questions were used during the interview but the interviewees were allowed to ask questions during the interview to avoid interviewer bias. Further, the following two approaches suggested by Lillis (1999) were used in the research: 1) the design and use of an interview guide (Appendix 4) and 2) a qualitative analytical protocol that will leave an audit trail.

5.4.3 Data analysis

The empirical evidence obtained was used mainly for theory building on the management accounting principles that were considered appropriate for countries operating in developing countries. The research is expected to be an 'eye opener' to research in management accounting in developing countries.

A qualitative analytical procedure was used to analyse and interpret the data. According to Lillis (1999) the analysis of any qualitative data involves the process of reduction, classification and interpretation.

Data collected was coded/matched according to the management accounting technique/practice that it related. At this stage the qualitative data collected was linked to the themes that were being investigated. Coding enhanced completeness of the data at the same time leaving out what may have been repeated or deemed unrelated to the matters being investigated. This method minimizes potential bias and provides an audit trail thus enabling the reader to track back to the source of the conclusions drawn.

After the data was classified and summarised, sections of the transcript were selected so as to identify patterns among the constructs. Information was then derived so that conclusions could be drawn on whether modern management accounting practices were considered appropriate for companies operating in developing countries.

To analyse data on management accounting change, the factors that facilitated/hindered the change and the value of these changes to the decision making practices, the five point Likert scale was used to convert qualitative data to quantitative data. The data was then analysed using descriptive statistics. Regression analysis was used to test for a significant relationship between management accounting change and the variables identified as facilitators of this change.

Further statistical tests using t-distributions were carried out to test whether the proportions calculated on the perceived benefits received from the adoption of modern

management accounting practices are statistically significant. Where possible the results were compared with those of other studies in developing/developed countries.

5.5 Validity of research method

An exploratory study allows for an in-depth understanding of observations and a greater involvement with the organisations under study (Coates; Richwook and Stacey, 1996). This enhances reliability and more scope of information is covered (Nzule, 1999).

While the approach is considered a departure from the commonly used research procedure, it is becoming more acceptable and is deemed necessary in accounting research. Mintzberg (1984) calls for direct research particularly when dealing with organisational matters. Academics in the field of accounting need to place less emphasis on detached mathematical analysis and more on fieldwork where they can focus upon studying how practitioners perceive the world of accounting (Kaplan, 1983; Hopwood, 1983; Hopper, 1999). The survey approach has widely been used by Drury *et al* (1993) in their studies of the application of accounting theory to practice. Burns *et al* (1999) also used the same approach in their study on changing practice of management accounting in United Kingdom.

A multiple research design (case study and survey) was recently adopted by Burns and Scapens (2000) in their study carried out in the U.K and by Merchant (1985,1990) in the USA. According to Shields (1997), out of the 152 articles published by North Americans in six leading journals during the first seven years of the 1990's, 28 used surveys, 10 used case studies while seven used multiple research methods.

5.6 Limitations of the study

The study was constrained by several factors. These are:

- a) The refusal of several companies to co-operate in the study. Out of the 300 companies selected for the survey, only 52 responded. However tests revealed that there was no response/non-response bias (See section 6.2 and 6.2.1). The response rate also compared favourably with the present global trend. We

therefore have no reason to believe that the non-respondents would have responded differently from the respondents.

- b) Conducting research on the management information of companies is made difficult by the element of confidentiality. For this reason, some respondents did not indicate their names in the questionnaire although they co-operated in the study. It is therefore difficult to know whether this phenomenon made some respondents withhold some information or actually falsify it. The face-to-face interviews tried to correct this shortcoming.
- c) The focus of this study is on the impact of globalisation and liberalisation on management accounting systems. The globalisation and liberalisation of developing countries' economies started sometime in the early 1990's and has been ongoing for the last decade. The sample time period was therefore typical for the study. However this may not be the case for observing change in other periods, since the rate of change reported here might be higher.
- d) Given the exploratory nature of this study and the range of variables examined, the hypothesis placed considerable reliance on the insights of authorities reporting on contemporary management accounting. Where the analysis did not support the expected results, reasons were identified to explain the results.
- e) Although developing countries share certain common characteristics, they are not a homogeneous group as they may differ in terms of their economic and accounting development. The findings of this study should therefore be applied outside South Africa with this in mind.

CHAPTER SIX

DATA ANALYSIS SURVEY

Data analysis is what one does with the questionnaire, interviews, documents, experimental data, field notes or other data collected during a research project. It is the stage of a project which one tries to answer the questions; What have we found? What do the data reveal? Analysis usually follows completion of data collection and precedes (and in some measure overlaps) the writing of the results. (Chadwick et al, 1984: 345).

6.1 Introduction

This chapter presents the findings of a questionnaire survey conducted between June and August 2001. The first section presents data on the demographic variables of the responding companies. It also explains the survey responses and the characteristics of the sample. The second section presents data on the management accounting practices of South African firms corresponding to the first research question. The third section presents data findings on management accounting change and the factors that facilitated this change. This corresponds with the third and fourth research questions.

The second and the fifth research questions and the factors that impede management accounting change will be dealt with in chapter seven.

6.2 Background

The questionnaire (Appendix 3) was sent, together with an accompanying letter (Appendix 6) and a self-addressed stamped envelope, to 300 companies selected from the 652 companies listed on the Johannesburg Stock Exchange as at 31-12-2000. Follow-up was made two weeks later by emailing the chief executive officers or the financial directors of the sampled companies. A total of 66 companies responded to the survey. However fourteen of these responses were letters explaining why the companies would not participate in the survey citing confidentiality, company policy and lack of time among other reasons. Fifty-two usable responses were received

representing a response rate of 17.3%, which compares favourably with other studies in this area (Zabihallah and Szendi, 1995; Burns *et al*, 1999; Sohal, Schroder, Uliana and Maguire, 2001). The respondents according to the sector are shown below.

Table 6.1: Classification of respondents

Sector	No. of companies	No. of respondents	% of response by sector
Banking and financial services	39	5	12.8%
Manufacturing	136	22	15.8%
Mining	30	6	20.0%
Insurance	8	2	25.0%
Retailing	29	7	24.1%
Investments	27	5	18.5%
Construction	13	2	15.4%
Property	18	3	16.7%
Total	300	52	17.3%

The insurance sector recorded the highest response rate (25%), followed by retailing (24.1%), mining (20%), investments (18.5%), property (16.7%), manufacturing (15.8%), and construction (15.4%) respectively. Banking and financial services recorded the lowest response rate of 12.8%.

Response bias was tested using analysis of variance (ANOVA) and the Z-distribution. ANOVA tests revealed that there was no statistical difference between the means of the sector responses. A test to show whether there is any significant difference between the lowest response rate of 12.8% and the highest response rate of 25% revealed a z-value of 1.32 against the critical value of 1.64 with a significance level of 0.05 (one tail test). Since the calculated value is within the acceptance region we were unable to reject the null hypothesis and concluded that the two response rates are not statistically different. The findings indicate that there is no response bias between the sectors.

6.2.1 Non response bias

An important point in interpreting the results of any postal survey is to see whether the conclusions are generalisable to the companies not participating in the survey

(Archer and Steele, 1984). A company's failure to participate in a survey may be attributed to:

- 1) Researchers not including them in the sample (e.g. unlisted companies in this study).
- 2) Companies in the sample choosing not to cooperate (non respondents).

This survey did not include unlisted companies (see section 5.2.1). Three approaches were used to test whether those companies that choose not to participate differ significantly from the responding companies:

- 1) Analysis of letters from companies that wrote expressing their reasons for non-cooperation (Archer and Steele, 1984; Innes and Mitchel, 1995; Guilding *et al.*, 2000). According to Guilding *et al.* (2000) if a non respondent cites lack of interest in the questionnaire or that the practices referred to in the questionnaire are irrelevant to the organisation, this would raise concern since other non respondents may have had a similar view. In this study, seven respondents cited lack of time, five respondents indicated that the companies were in the process of liquidation while two indicated that participating in such a survey was against the company's policy. Since none of the respondents indicated that the questionnaire was irrelevant to their operations, it is reasonable to believe that non-response bias is not significant in the study.
- 2) Early/late replier difference test (Oppenheim, 1966; Taylor, 2001). Oppenheim (1966) reported that the characteristics of late survey respondents are similar to those of non-respondents. In this survey no evidence was found of any non-response bias when the characteristics of the first 10 respondents were compared to those of the last 10 respondents (using Fisher's exact test).
- 3) Describing the characteristics of the responding companies. As indicated in Section 6.2 of this thesis, there are no significant differences between the industrial classifications of the responding companies.

In summary, there is no evidence to suggest non-response bias in this study.

6.3 Management accounting practices

This section presents data findings on the management accounting practices of South African listed companies. Data regarding the importance of the management accounting practices is reported in raw score (without weighting) to facilitate comparison between the degree of importance scores (extremely important, above average importance and average importance) and the scores of not important and irrelevant. The extremely important and above average importance scores of each variable were aggregated to facilitate ranking. The variables were ranked in ascending order with those that obtained higher scores being ranked first.

Data relating to the extent of use of the management accounting practices is also reported in raw form where multiple scales have been used. Where multiple scales were not used, qualitative data was converted into quantitative data using the scale below. Mean scores were then used to interpret the findings.

Variable scale: always = 5; often = 4; sometimes = 3; rarely = 2; never = 1.

For statistical analysis, data was analysed using Intercooled Stata 6.

The respondents were classified into: 1) industry, 2) age, and 3) size. Industrial classification was based on the way the respondent is classified on the JSE (refer to table 1). For age, the respondents were classified into two groups; those that were formed more than ten years ago were classified as old while the rest were classified as new companies (this was based on question 1.4 of the survey questionnaire). The number of employees was used to measure size in this study. No differences were found when size was measured in terms of turnover and in terms of number of employees. Uliana (1985, 1991) also found no significant differences between the use of turnover and number of employees in his measurement of size. Respondents with more than 1000 employees were classified as large while the rest were classified as small. Sohal *et al* (2001) also classified companies with more than 1000 employees as large companies. The three studies referred to here are South African studies.

The Chi-square was used to test for any significant relationship between the management accounting practices used by the respondents and their industrial classification, age and size. The results of these tests are shown in Appendix 9 and will be reported in the main body only if a significant difference is indicated. Where possible the results of this study were compared with those of other studies in developed and/or developing countries, for example the survey of management accounting practices by South African manufacturing firms (reported in Horngren *et al.*, 1999). Theory was used to understand the similarities or differences between the results of this study and other related studies. While this form of analysis is considered important it is subject to several limitations relating to differences in the population from which the samples are drawn, sample sizes and the wording of the questions (Correia, 1996). This was also a South African study.

6.3.1 Budgeting

Question 2.1 requested the respondents to describe their budgeting process. The results are presented in table 6.2 below. The main aim of this section was to find out whether the responding companies operated a formal budgeting system and if so, the use of budgets for managerial decision making.

Table 6.2: Types of budgets

Type	No. of respondents	Proportion	Rank
Fixed	16	31.3%	2
Flexible	35	68.7%	1
Total	51	100%	

Out of the 52 respondents, only one indicated that no budgeting processes existed in the company. Consequently 98% of the responding companies operate a formal budgeting system. Hope and Fraser (1998) reported that surveys in Europe have indicated that 99% of all the companies surveyed operate a formal budgeting system. In this survey, 35 companies (68.7%) used flexible budgets, while sixteen companies (31.3%) used fixed (or static) budgets. The findings therefore indicate that the flexible budgeting process is most widely adopted by the responding South African companies. These findings are consistent with the literature in chapter three which

advocates the use of flexible budgets in view of the rapidly changing business environment.

The Chi-square test (Appendix 9) revealed no significant relationship between the type of budget used by the respondents and their industrial classification. However the relationship between the type of budget used and the age and size of the company is significant at 90% confidence level. This may suggest that both the age and the size of the company will influence the type of budget to be adopted.

The table below shows a comparison of the results of this study with a UK study conducted by Drury *et al* (1993).

Table 6.3: A comparison of budgeting systems (South Africa vs UK)

Type of Budget.	Waweru, 2001 N=51	Drury <i>et al</i> , 1993 N=295
Fixed	31.3%	58%
Flexible	68.7%	42%
Total	100%	100%

The high use of flexible budgets in South Africa may be attributed to the high levels of Perceived Environmental Uncertainty (PEU) experienced in developing countries. The UK being a developed country experiences a relatively stable economy, in which conditions are not likely to change substantially during the year. This may justify the widespread use of fixed budgets.

Question 2.2 requested respondents to indicate how they prepared their master budget.

The results are shown in table 6.4.

Table 6.4: Budgeting process

Type	No. of responses	Proportion	Rank
Incremental	24	47.0%	2
Zero-based	30	58.8%	1
Activity-based	7	13.7%	3
Total¹	61	119.5%	

¹Multiple responses hence percentage greater than 100%

The results in table 6.4 show a high application of ZBB (58.8%) and a very low application of ABB (13.7%) in the subject South African companies. However most

of the respondents indicated that zero-based budgeting was being used in conjunction with either of the other two methods. This probably suggests a simplified adaptation of zero-based budgeting amongst the subject South African firms. This is in line with the recent advocacy in literature that proposes a move towards the adoption of zero based budgeting in order to counter the deficiencies of incremental budgets (Hope and Fraser, 1998). Literature has however cautioned that zero-based budgeting is both time consuming and expensive to use. Consequently it is recommended that this type of budgeting be used after every five years (Hirsch, 1998). The low usage of ABB suggests that activity cost management systems are not widely used amongst the subject South African firms.

Chi square tests (Appendix 9) revealed no significant relationship between the budgeting process adopted by the company and the company's industrial classification, age or size.

Question 2.3 requested the respondents to rate the extent to which certain specified methods are used in forecasting revenue. The findings are shown in table 6.5.

Table 6.5: Sales forecasting techniques

Technique	Always	Often	Sometimes	Rarely	Never	Rank
	Score	Score	Score	Score	Score	
Statistical Forecasting	9	10	14	11	7	3
Market Research	5	18	13	11	4	2
Subjective methods	26	17	6	2	0	1

n=51

These findings suggest a high usage of subjective methods based on managerial experience and a relatively low usage of the statistical forecasting methods. In fact 43 respondents (85%) always/often used subjective methods to forecast sales revenue and only nineteen respondents (39%) always/often used statistical methods. Eighteen (35%) respondents rarely/never used statistical regression methods. The limited use of

statistical methods may be attributed to the sophistication and cost associated with these techniques. The use of sophisticated forecasting techniques may probably not meet the cost/benefit consideration. Moreover, in rapidly changing economies, statistical methods are likely to give less accurate results since they rely on historical data. In addition historical data may not be available in economies that are now entering new markets (like South Africa) after globalisation and liberalisation.

In summary, South African companies prefer subjective methods based on managerial experience. The costs associated with statistical methods may exceed the benefits derived from their use in developing countries where historical data may either be unavailable (where companies are entering new markets) or unreliable (when the economy is changing rapidly). This may be the situation in South Africa since firms are now trying to enter new markets after the opening up of the South African economy in the mid 1990's.

Question 2.4 requested respondents to indicate their present position regarding the introduction of Activity Based Budgeting (ABB). The results are shown in table 6.6.

Table 6.6: Adoption of activity based budgeting

Statement	No. of companies	Percentage
No discussions	25	49.0%
Decision not to introduce ABB	9	17.6%
Some consideration has been given	8	15.7%
We intend to introduce ABB	3	5.9%
ABB has been introduced	6	11.7%
Total	51	100%

The findings in table 6.6 show a very low adoption of ABB amongst responding firms (11.7%) while 17.6% have decided against adoption. However about half the firms have not yet had any discussions on the matter, which may suggest that the practice is still in the early stages of evolution in South Africa. The research findings therefore indicate that ABB is not a very popular budgeting method amongst the subject South African firms.

Statistical tests using chi-square, showed no significant relationship between the introduction of ABB and the company's industrial sector classification, age and size. However the relationship between the adoption of ABB and the industrial sector is significant at 90% confidence level ($p = 0.08$). This suggests that the adoption of ABB may depend on the sector in which a company finds itself.

Question 2.5 requested respondents to rate the influence of specified staff in the authorisation of the final departmental budget. The results are shown in table 6.7.

Table 6.7: Influence on budget authorisation

Position	Extremely Important	Above Average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
Supervisor	8	12	19	9	6	4
Dept. mgr	8	28	10	3	2	2
Budget staff	5	20	22	2	2	3
Senior mgt	42	9	-	-	-	1

n=51

According to the findings, senior management was ranked first while supervisors ranked lowest. All the respondents rated senior management as being extremely important/above average importance. Only 35% of the respondents rated supervisors as being extremely important/above average importance. Furthermore fifteen respondents (29%) rated supervisors as being not important/irrelevant. This suggests that senior managers have more authority than the supervisors in regard to budget authorisation. Overall, incorporating both top down and bottom up aspects, the findings suggest a well-balanced approach to budgeting decisions. This is in line with current literature, which calls for a more decentralised system of the decision making process (Anthony and Govindarajan, 1998).

In summary, budget authorisation amongst South African firms appears to be well balanced. However final authorisation of budgets rests with senior management. This may be appropriate in developing countries where lower level managers generally have less managerial training than higher-level managers. The results of the study by

Drury *et al* (1993) show a similar situation in developed countries, where senior management authorisation is 92% extremely/above average importance.

Question 2.6 requested respondents to rate the importance of budgeting in respect to various purposes of budgeting. The results are presented in table 6.8 below.

Table 6.8: Importance of budgeting

Management goal	Extremely Important	Above Average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
Resource Allocation	22	12	15	3	-	4
Communication	10	26	9	5	1	3
Coordination	8	22	13	5	3	6
Control	29	10	8	3	1	1
Performance Evaluation	11	23	12	3	2	5
Planning	24	14	9	2	2	2
Motivation	6	17	11	10	7	7

n=51

According to these findings, control was rated the most important purpose of budgeting while motivation was ranked lowest. Planning was rated the second most important purpose. Twenty-nine out of the 51 respondents considered control as an extremely important purpose of budgeting. Only 6 respondents (11.7%) considered motivation as an extremely important purpose. Furthermore seventeen respondents (33%) rated motivation as not important/irrelevant. Budgets are therefore seen to play a much bigger role in controlling the activities of the organisation than in motivating managers. These findings are consistent with those of Waweru (1999) in a Kenyan based study.

The results further show that control, planning and resource allocation are rated highest, communication and coordination are rated second highest while performance evaluation and motivation are rated lowest. This suggests that budgets are mainly used to allocate and control the organisation's resources. Drury (2002) argues that budget targets must be acceptable if the managers are to be motivated to achieve high levels

of performance. In this study the low rating of performance evaluation and motivation indicate that the budget targets may not necessarily be acceptable to the managers. The finding that the influence of senior management in budget authorisation is 100% above average importance also supports this.

Developing countries experience lower levels of corporate governance relative to developed countries, hence more need for control. Unlike developing countries therefore, developed countries may be able to utilise budgets to motivate their employees. The high levels of corruption experienced in developing countries also create a greater need for control.

In summary, the most important use of budgeting is that of planning and control. In the present era that is characterised by increasing competitive pressure, control of the firm's resources is critical so that it is able to cut costs and reduce waste to survive. However the other budgeting purposes are still considered important and should not be overlooked.

6.3.2 Product cost measurement

Question 3.2 asked respondents to indicate the approach used by their companies to separate fixed and variable costs. Table 6.9 shows the proportion of the responses received.

Table 6.9: Methods of separating costs

Method	No. of companies	Percentage of use
Statistical regression	2	4.2%
Managerial experience	26	55.3%
Overheads fixed while direct costs variable	14	29.8%
Overheads and labour fixed but materials costs variable	5	10.7%
Total	47	100%

Twenty-six respondents (55.3%) classified costs on a subjective basis on managerial experience, while only two respondents (4.4%) used statistical regression techniques. These findings are consistent with those of Clarke (1994) who found that 80% of the Irish firms studied used managerial judgement to separate costs and only 1% used statistical regression techniques. Drury *et al* (1993) also reported that 59% of the responding firms classified their costs on a subjective basis based on managerial experience and only 2% used statistical regression techniques.

The Chi-square test (Appendix 9) revealed no significant relationship between the method used by the companies to separate costs and the company's industrial classification, age and size.

Question 3.3 asked respondents to indicate the percentage of the company's indirect costs. Most respondents did not respond to this question while others indicated that they were not sure. Only fifteen respondents completed this section of which five (33.3%), indicated that their indirect costs percentage ranged between 25% and 50%. The remaining ten respondents (67%) indicated that their indirect costs were in excess of 50%. The high proportion of indirect costs suggests the need to implement modern management accounting methods such as ABC. Activity based techniques will not only provide accurate product costs but also assist firms to distinguish between profitable and unprofitable products. These findings are inconsistent with what would be expected in developing countries where labour intensive techniques are preferred (Jhingan, 1993). Consequently direct costs would have been expected to be more dominant. However since only a few companies responded to this question the findings may not be representative without further research.

Question 3.4 requested respondents to rate the extent to which variable, fixed and total costs are used for decision making purposes. The findings are summarized in table 6.10.

Table 6.10: Extent of use of costs for decision making

Type of cost	Always	Often	Sometimes	Rarely	Never	Rank
	Score	Score	Score	Score	Score	
Variable/ Incremental	30	8	7	2	-	1
Fixed	1	9	14	13	10	3
Total costs	9	10	23	3	2	2

n=47

According to these findings, variable costs were ranked highest while fixed costs ranked lowest. These findings have the support of the literature, which advocates the use of variable costs for decision making and brands fixed costs as irrelevant for *short-term* decision-making. It is further noted that over 80% of the respondents always/often used variable costs for decision making in South Africa while only 52% always/often used variable costs in the UK (Drury *et al.*, 1993). South Africa is currently experiencing a rapidly changing economic environment unlike the UK, which enjoys a relatively stable economy. Decisions in South Africa may therefore be more short term than long term. Classification of costs into fixed and variable only holds in the short run, as all costs tend to become variable in the long run (Homgren *et al.*, 1999).

Question 3.7 asked the respondents to describe their costing system. The findings are presented in table 6.11.

Table 6.11: Types of costing systems

Cost system	No. of companies	Percentage	Rank
Full costing	6	12.8%	3
Marginal costing	8	17.0%	2
Both methods	33	70.2%	1
Total	47	100%	

According to these findings, most of the respondents used both marginal and full costing methods (70.2%). These findings suggest that South African firms recognise the effect of costing on pricing decisions hence the need to use marginal costing for short-term/once off decisions and full costing for long-term decisions. Horngren *et al* (1999) reported that 35% of the responding South African firms mainly used marginal costing, 62% mainly used full costing while the remaining 3% used other methods. However Horngren's study did not include the possibility of the use of both methods and is therefore not comparable to this study.

The Chi-square test (Appendix 9) revealed no significant relationship between the costing method used and the industrial classification, age or size of the company.

Question 3.8 asked respondents to indicate the methods used to allocate overhead costs to individual products. The research findings are presented in table 6.12.

Table 6.12: Methods of cost allocation

Method	No. of companies	Percentage	Rank
Machine/labour hrs	10	30.3%	2
Activities performed	15	45.5%	1
Labour costs	4	12.1%	4
Material costs	2	6.0%	6
Units of output	6	18.2%	3
Others	4	12.1%	5
Total	33	124.2%	

NB: Total percentage greater than 100% due to multiple responses.

The findings in table 6.12 show a high use of activities in the allocation of indirect costs to products (45.5%). However many respondents still appear to prefer simple cost allocation bases. For example 30.3% of the respondents still use direct labour/machine hours as their allocation bases. Except for the increase in the use of activities as an allocation base, the findings are consistent with those of Horngren *et al* (1999) who reported the preference for simple cost allocation bases such as labour/machine hours in developing countries. The increase in the use of activities as an allocation base suggests a move towards Activity Based Costing presently advocated in the literature.

Question 3.5 asked the respondents to indicate the company's position in respect to the introduction of Activity Based Costing (ABC). ABC here refers to the use of cost of activities to cost products and is different from ABB which refers to the use of activities performed to determine budgets (refer to table 6.6). The research findings are presented in table 6.13.

Table 6.13: Adoption of activity based costing

Statement	No. of companies	Percentage	Rank
No discussions	11	23.4%	2
Decision not to introduce ABC	4	8.5%	5
Some consideration has been given	9	19.1%	3
We intend to introduce ABC	8	17.0%	4
ABC has been introduced	15	32.0%	1
Total	47	100%	

The findings in table 6.13 show a very high level of adoption of ABC amongst responding firms (32%) while 8.5% have decided against adoption. Although this study showed a high level of indirect costs, the high adoption rate was not expected since the literature in chapter 3 indicated that indirect costs still make up a small proportion of the total costs in developing countries. However the current increases in competition levels after the liberalisation of the economy may have created a need for more accurate product prices and hence ABC. It should also be noted that, in addition to product costing, ABC may be used for other purposes e.g. customer profitability analysis (Horngren *et al*, 1999).

The findings are consistent with those of the Burns *et al* (1999) study, which reported that 31% of UK firms studied had already introduced ABC. An earlier UK based study carried out by Innes and Mitchell (1995) had reported that 20% of the participating firms had introduced ABC. Horngren *et al* (1999) reported that 14% of the surveyed firms in South Africa had implemented ABC, while another 15% were considering implementing the system.

In summary, as far as implementation of ABC is concerned, changes in management accounting practices have occurred more rapidly (only 2 years since the Horngren *et*

al study), when compared to the two UK studies mentioned above. This change may be attributed to the high increases in competition levels.

The Chi-square tests revealed no significant relationship between those respondents who had adopted ABC and their industrial classification or age. However the relationship between the adoption of ABC and the industrial sector is significant at 90% confidence level ($p = 0.1$). Also a significant relationship exists between the adoption of ABC and the size of the respondent (table 6.14 below) with large companies being far more inclined to use ABC. Innes and Mitchel (1995) observed similar findings in their UK based study. This is not unexpected as larger companies have more resources to develop new management accounting techniques (Hoque and James, 2002).

Table 6.14: Relationship between company sector and size and ABC adoption

Sector	Waweru, 2001		Innes and Mitchel, 1995	
	Users	Non-Users	Users	Non-Users
Manufacturing	9	13	35	142
Non-manufacturing	6	19	14	60
Total	15 (32%)	32 (68%)	49 (20%)	202 (80%)
SIZE⁺				
Small	1	17	16	106
Large	14	15	33	96
Total	15 (32%)	32 (64%)	49 (20%)	202 (80%)

⁺ Significant at $\alpha=0.05$

Question 3.6 asked those respondents who had introduced ABC to indicate the number of cost drivers used to trace overheads to products. A summary of these findings is presented in table 6.15.

Table 6.15: No. of cost drivers

Range	No. of companies	Percentage	Rank
1-5	2	13.3%	3
6-10	9	60.0%	1
11-20	4	26.7%	2
Over 20	-	-	4
Total	15	100%	

According to the findings, 60% of those using ABC used between six and ten cost drivers, 26.7% used between eleven and twenty cost drivers while the remaining 13.3% used between one and five cost drivers. None of the respondents used more than twenty cost drivers.

In summary about 87% of the ABC adopters in South Africa use between six and twenty cost drivers. The increase in cost drivers beyond this figure may be considered dysfunctional since it may lead to the system becoming more complicated. Consequently the cost of using the system may not meet the cost/benefit consideration. Cooper and Kaplan (1999) argue that where the primary focus of the ABC system is to estimate product and customer costs, then ten to thirty cost drivers would be adequate.

6.3.3 Inventory management and JIT philosophy

Question 4.1 asked the respondents to indicate the method used to manage their inventory and more complex business operations. Forty-three respondents indicated that they do maintain certain levels of inventory, while the remaining nine respondents reported that no inventories were held. The survey results are summarised in table 6.16.

Table 6.16: Inventory control methods

Method	No. of companies	Percentage	Rank
Minimum stock	27	62.8%	1
EOQ	15	34.9%	3
JIT	6	14.0%	5
Marginal analysis	7	16.3%	4
Past experience	18	41.9%	2
Probability theory	0	-	7
Other	2	4.6%	6
Total	43	174%	

NB: Totals More than 100% due to multiple responses.

According to these results, most of the respondents maintained a minimum stock (62.7%). To determine how much to order when stock got to this level, most respondents (41.9%) used past experience while no respondent used probability theory.

The respondents attributed the high need to maintain minimum stock to the unreliability of supply from manufacturers due to poor supply chain management in South Africa. Poor supply chain management usually leads to fear of shortages, which may result in the inability to meet customer demand.

Question 4.2 asked the respondents to indicate their position regarding the introduction of JIT. The research findings are presented in table 6.17.

Table 6.17: Adoption of just in time

Statement	No. of respondents	Percentage	Rank
No discussions	12	28.0%	2
Decided not to introduce	5	11.7%	5
Some consideration of introduction	14	32.4%	1
We intend to introduce	4	9.3%	4
JIT has been introduced	8	18.6%	3
Total	43	100%	

The findings in table 6.17 show a very low adoption of JIT amongst responding firms (18.6%) while 11.7% have decided against adoption. However 32.4% of the respondents have given some consideration to the introduction of JIT, which suggests that the practice may become a popular practice in future. Several respondents

indicated that although JIT was desirable, the present poor supply chains in South Africa hampered its introduction. In developed countries where supply chain management is well developed, high implementation of JIT has been reported. For example Drury *et al* (1993) reported that out of the 251 respondents, 28% had already implemented JIT, while a further 40% intended to introduce the system.

Question 4.3 asked those respondents who had introduced JIT to indicate the extent of its application. 25% indicated that JIT was used to manage only a limited amount of their inventory, 50% indicated that JIT was used to manage most of their inventory lines while the remaining 25% indicated that JIT was being used to manage all types of their inventory. The success of JIT techniques may have been hampered by the problem of poor infrastructure, which is common in most developing countries.

Chi-square test (Appendix 9) revealed that there was no significant difference between the introduction of JIT and the respondent's industrial classification, age or size.

Question 4.4 asked the respondents to rate the importance of the company's inventory management systems. The research findings are summarised in table 6.18.

Table 6.18: Objectives of inventory management

Objective	Extremely Important	Above Average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
Min. holding Costs	23	14	3	1	2	2
Min. ordering costs	19	11	8	4	1	4
Meet customer Demand	30	9	2	1	1	1
Government regulations	4	7	13	10	9	6
Avoid Shortages	20	16	3	1	3	3
Reduce transport costs	8	20	10	2	3	5
Speculation	-	1	7	14	21	7

N=43

According to these findings, most respondents used the inventory control methods to meet customer demand. Thirty-nine respondents (90%) rated “meet customer demand” as extremely important/above average importance while only one respondent (2%) rated “speculation” as extremely important/above average importance. Furthermore 19 respondents (44%) rated government regulations as an irrelevant/not important objective of inventory management suggesting little government interference in the marketplace. The respondents rated ‘meet customer demand’ and ‘avoid shortages’ higher than ‘minimise holding costs’, ‘minimise ordering costs’ and ‘reduce transport costs’. These findings indicate that inventory is

of Drury and Tayles (2000) who reported that 60% of the companies surveyed in the UK used cost plus pricing while 15% used marginal pricing.

The Chi-square test revealed that there is a significant association between the pricing method used and the company's industrial classification (X^2 ; 38, df; 21, α ; 0.04). Further chi-square tests revealed no significant relationship between the pricing strategy adopted and the size of the company or age.

Question 5.2 requested the respondents to rate the extent to which their product costs are compared with the market determined selling prices for major products. The findings are shown below.

	Never	Rarely	Sometimes	Often	Always
N= 47	1.6%	1.0%	12.8%	36.3%	48.1%

Eighteen respondents (48.1%) indicated that this was always done, while only three respondents (1.6%) reported that the comparison was never done. A mean score of 4.0 was obtained on a scale of 1-5 (1 represents never while 5 represents always). The results suggest that there is a great need amongst South African companies to maintain competitiveness.

Question 5.3 requested the respondents to indicate their basis for computing depreciation where this was used in product costing. Out of the 43 respondents who reported that depreciation was being used to compute product pricing, 31 (72%) reported that depreciation was computed on an historic cost basis. Theory suggests that depreciation ought to be based on replacement rather than historical cost (Drury *et al*, 1993). Although the survey findings are consistent with those of Drury *et al* (1993) who reported that 90% of the UK based responding firms used historical cost bases, the current practice could lead to the under pricing of the products of the responding firms. This may lead to South African products becoming unsustainable.

Question 5.4 asked the respondents to indicate the extent to which (on a scale of 1-5) target costing was being used. The results are shown below.

	Never	Rarely	Sometimes	Often	Always
N= 47	36%	25.5%	17.0%	14.8%	6.4%

Out of the 47 respondents, only three respondents (6.4%) reported that target costing was always used while seventeen companies (36%) reported that target costing was never used. A mean score of 2.3 was achieved which is below average, indicating that target costing is not a common practice amongst South African firms. The low application of target costing in developing countries is consistent with the high perceived environmental uncertainties. High PEU makes predictions unreliable since market conditions continue to change rapidly. This situation contrasts sharply with that of developed countries. For example in Japan, Sakurai *et al* (1991) reported that 79% of the companies surveyed used target costing. In the UK Drury *et al* (1993) reported that 26% of the companies surveyed always/often used target costing.

Question 5.5 asked the respondents to rate the importance of their pricing policy objectives. The findings are presented in table 6.20.

Table 6.20: Pricing policy objectives

Management goal	Extremely Important	Above Average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
Max sales	9	24	8	5	1	2
Max profits	40	4	3	-	-	1
Increase market share	5	26	11	3	2	3
Offer low mkt price	4	10	16	10	7	5
Market penetration	3	9	10	9	16	6
Focus	4	11	13	11	8	4

According to these findings, maximization of profits was ranked highest while market penetration was ranked lowest. Maximisation of sales was ranked second while increase market share was ranked third. Most respondents (94%) rated maximization

of profits as an extremely important/above average importance objective of pricing while only 24% rated market penetration as an extremely important/above average importance pricing objective. Furthermore sixteen respondents (34%) rated market penetration as an irrelevant pricing objective. Maximization of profits is therefore considered a more important pricing objective than market penetration. The findings suggest that South African firms used their pricing policies to increase their share in the market so as to maximise their sales. This may eventually result to increased profits. The findings are consistent with the theory of the firm (section 4.6), which states that profit maximization is still considered the main goal of a business firm.

In summary, the most South African firms adopt certain pricing strategies so as to maximize profits and hence shareholders' value. These findings are consistent with the literature, which states that the main aim of a business firm is to maximize profits. Although profit maximization is the overall goal, other goals are also important since they all tend to support the long run survival of the firm.

6.3.5 Transfer pricing

Question 6.1 requested the respondents to indicate whether or not transfer pricing is practiced in their companies. Thirty-four companies reported that transfer pricing was being practised. The respondents were then requested to indicate their company's policy on transfer pricing. The research findings are presented in table 6.21.

Table 6.21: Transfer pricing methods

Method	No. of respondents	Percentage	Rank
Market prices	5	14.7%	4
Cost-plus	17	50.0%	1
Negotiated	8	23.5%	2
Marginal cost	6	17.6%	3
Other	2	5.8%	5
Total	34	111.6%	

NB: Total percentage higher than 100% due to multiple responses.

According to these findings, the most commonly used transfer pricing method was the cost-plus method (50%). These findings are consistent with those of Horngren *et al* (1999) who reported that the most widely domestic transfer pricing method adopted was the cost-plus method. However the findings are inconsistent with those of Vally

(1998) who reported that market price was the most important transfer pricing method amongst the responding South African firms.

The Chi-square test revealed that there is a significant relationship between the transfer pricing method used by the respondents and their industrial classification (X^2 : 33.29, df: 21, α : 0.04). Further Chi square tests revealed a significant relationship between the size of the respondents and the transfer pricing method used (X^2 : 14.783, df: 3, α : 0.05). Vally (1998) also found a significant association between the size of the company and the transfer pricing method used amongst South African firms.

Question 6.4 requested the respondents to indicate whether divisions were allowed to outsource goods that are normally available within the group. Twenty-nine respondents reported that this was allowed but head office authority was required in twenty of them. Question 6.5 asked the respondents to indicate whether they were allowed to sell goods that can normally be sold within the group to buyers outside the group. Of the 26 respondents who indicated that this practice was allowed only eight were allowed to do so without head office authority. These findings suggest that there are relatively low levels of decentralisation in regard to transfer pricing decisions amongst South African firms. In the UK Drury *et al* (1993) reported that 68% of the companies surveyed were allowed to outsource goods that were normally available within the group. Of these companies, head office authority was not required in 62% of them. This suggests that there are relatively high levels of decentralisation or that policies are in place in developed countries in regard to transfer pricing.

6.3.6 Capital investment appraisal methods

Out of the 52 respondents, 46 reported that capital investment appraisal was being practiced in their companies. Question 7.2 asked the respondents to rate the methods used by their company to appraise capital investment projects. The research findings are presented in table 6.22.

Table 6.22: Importance of capital investment appraisal methods

Method	Extremely Important	Above Average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
ARR	3	5	24	10	4	4
PBP	9	28	4	3	2	3
NPV	28	13	5	-	-	1
IRR	29	9	6	1	1	2

n=46

According to these findings, the Net Present Value method (NPV) was rated as the most important method, followed by IRR while Accounting Rate of Return (ARR) was rated lowest. Forty-one respondents (89%) rated NPV as an extremely important/above average importance method while only eight respondents (17.3%) rated ARR as an extremely important/above average importance method. Furthermore fourteen respondents (30%) rated ARR as a not important/irrelevant method. Twenty-eight respondents (60.1%) rated the Pay Back Period method (PBP) as above average importance. These findings suggest that South African firms prefer discounted cash flow methods (NPV and IRR) with the PBP being used as supplementary method. The findings are consistent with those of Taylor (2001) who found out that the most important valuation method used by South African capital ventures was the discounted capital method.

Coltman (1995) reported that the PBP method was the most popular method in South Africa. However Correia (1996), while reviewing the theory and practice of capital budgeting in South Africa observes that the NPV and IRR methods have shown increasing use and have become more popular in practice while ARR has shown a decline in use since 1986. PBP is still considered popular but is used as a supplementary rather than a primary method. Most of the studies conducted in Belgium, the USA, UK and Japan have shown widespread use of the non-discounted capital appraisal methods e.g. Dardenne (1998) in Belgium, Tranan and the Gitman (1995) in the USA, Drury *et al* (1993) and Pike (1996) studies in the UK and the Sakurai *et al* (1991) in Japan. Capital appraisal methods in the two worlds are therefore different.

The preference for the discounted cash flow methods in South Africa may be due to the expected future changes in lending rates, the high inflation figures and the depreciation of the South African Rand. This is unlike in the West where the economic conditions are generally stable. The use of simplified non-discounted cash-flow methods may be justifiable under those stable economic situations.

Unlike the economies of developed countries, the economies of developing countries are unstable. The perceived environmental uncertainty (PEU) is therefore higher in developing countries than in developed countries. Taylor *et al* (2001) argues that when the PEU is high, managers will require more sophisticated management accounting systems to cope with the complexities of the environment and reduce the anxiety imposed by the high PEU. This may explain why South African firms prefer the discounted cash flow methods.

In summary, South African firms now prefer discounted cash flow methods, with little difference between NPV and IRR and in most cases more than one method being used. The discounted methods are expected to continue dominating in view of the current unstable economic conditions.

Question 7.3 asked the respondents to indicate the method that best describes how inflation was being dealt with in their capital investment appraisal. Question 7.4 further asked the respondents to indicate the discount rate used to discount cash flows. The results are summarised in table 6.23.

Table 6.23: Methods of dealing with inflation

Adjustment of cash flows	Discount rate	
	Real (N)	Nominal (N)
By anticipated rate of inflation	18	12*
No adjustment (current prices used)	6	4
Expressed in real terms	1*	3
Total (N=46)	27	19

The items marked with an asterisk in the above table refer to the theoretically correct treatment of inflation. Thirteen respondents (28%) therefore dealt with inflation

correctly. Six respondents (13%) stated that cash flows expressed in current prices are discounted at real discount rates. This approach is not theoretically correct because fixed 'tax shields' result in current price cash flows that are not equivalent to real cash flows but they may provide a close approximation (Drury *et al*, 1993). This approach therefore may not significantly distort the present value or IRR calculations.

Eighteen respondents (39%) discounted nominal cash flows at real discount rates (thus overstating the NPV/IRR calculations). Under the circumstances, projects that would otherwise have been rejected would be accepted. Three respondents (6.5%) discounted real cash flows at a nominal discount rate (thus understating the net present values). This may result in under investment where viable projects are rejected. A further four respondents (8.6%) used nominal discount rates to discount current price cash flows. This may significantly underestimate the present value of the project's cash flows and may lead to profitable profits being rejected.

In summary 54% of the respondents do not deal with inflation correctly. This has financial consequences for the firm and negative implications for the South African economy generally. There is therefore a need for further research in this area to confirm the questionnaire responses.

6.3.7 Divisional performance measurement

Question 8.1 asked respondents to indicate the bases used by their organisations to create divisions. The results are presented in table 6.24 below.

Table 6.24: Bases used to split organisations

Base	No. of responses	Percentage	Rank
Nature of product	33	67.3%	1
Geographical area	12	24.5%	2
Market served	7	14.3%	4
Function	9	18.3%	3
Total	49	124.4%	

NB: Total percentage more than 100% due to multiple responses.

According to these findings 33 respondents (67.3%) used products as a basis of creating divisions while only seven respondents (14.3%) used the nature of the market served. The use of products in creating division makes it easier for companies in

distinguishing between profitable and unprofitable products. The findings are consistent with those of Drury *et al* (1993) who reported that 78% of the UK companies surveyed used products as a basis of creating divisions.

Question 8.2 requested the respondents to indicate whether divisional performance was being measured in their organisations. All 49 respondents responded in the affirmative. Question 8.3 further requested the respondents to rate the importance of certain specified measures of divisional performance. The survey findings are presented in table 6.25.

Table 6.25: Importance of divisional performance measures

Method	Extremely Important	Above average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
ROI	10	10	12	11	6	5
EVA	11	11	16	7	4	3
Acc. profit	28	15	4	2	-	1
Contribution	23	17	6	3	-	2
Sales vol.	6	20	13	5	5	4

n=49

According to these findings, accounting profit after overheads was rated the most important measure of divisional performance. Economic value added was ranked third, while return on investment was ranked lowest. Twenty-eight respondents (57%) considered accounting profits an extremely important method and only ten respondents (20%) considered ROI as an extremely important method. Consequently more respondents prefer accounting profits to ROI. The literature advocates the use of divisional contribution as the best measure of divisional performance (Drury and Tayles, 1997; Drury, 2000). The research findings are therefore consistent with this view. This high preference for accounting profits may be due to the fact that this measure is readily available from the financial accounting reports and does not require further computation unlike ROI.

6.3.8 Managerial performance measurement

Unlike divisional performance, which measures the extent to which a division has contributed to the overall economic performance of the organisation, managerial

performance looks at the extent to which the divisional manager has been able to utilise the resources under his control effectively. Question 9.1 asked the respondents to indicate whether the performance of managers was measured in their organisations. A total of 48 respondents responded in the affirmative. The respondents were then requested to rate the importance of certain specified measures of managerial performance. The results are presented in table 6.26 below.

Table 6.26: Importance of performance measures of divisional managers

Method	Extremely Important	Above Average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
ROI	20	14	4	6	4	4
EVA	16	12	8	7	5	6
Acc. profit after overheads	31	10	5	1	1	3
Contribution	34	8	3	2	1	2
Sales vol.	16	14	8	6	4	5
Ability to stay within the budget	34	9	4	-	1	1

n=48

Ability to stay within the budget was rated highest while contribution margin ranked second. These findings agree with the controllability principle advocated in the literature which states that managerial performance should only be measured with what is within the manager's control (Atkinson *et al.*, 1997). Accounting profits after overheads was rated third. The high score of accounting profits after overhead costs indicates that South African firms are quickly adopting the recent theory advanced in the literature, which states that head office costs should be taken into account when measuring managerial performance (Hornigren *et al.*, 1999). The findings of this study are consistent with those of Drury *et al.* (1993) who reported that target profit was the most important measure of managerial performance. This measure scored 61% and was followed by ability to stay within the budget, which scored 57%.

Although South African firms consider ability to stay within the budget as the most important measure of managerial performance, the results suggest the use of more than one performance measure. This would discourage divisional managers from attempting to manipulate the basis of their performance evaluation. Most respondents also commented that they were in the process of introducing Economic Value Added (EVA). It is therefore expected that EVA will soon become a more important performance measurement tool in South Africa.

Question 9.5 requested the respondents to rate the importance of certain specified purposes of performance evaluation. The research findings are presented in table 6.27.

Table 6.27: Importance of performance evaluation

Purpose	Extremely Important	Above Average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
Rewarding managers	22	24	2	1	-	1
Evaluating managers	19	25	3	1	1	2
Control	15	16	14	2	2	4
Planning	9	17	12	8	3	5
Motivation	18	16	8	4	3	3
Training/ Learning	10	15	13	6	5	6

n=49

According to these results, rewarding managers was rated the most important purpose of performance evaluation, while training/learning was ranked lowest. Twenty-two out of the 49 respondents rated rewarding managers as an extremely important purpose of performance evaluation. Only ten respondents (20%) rated training and learning as extremely important. Rewarding managers is therefore considered a more important although not the sole purpose of performance evaluation.

From the agency theory perspective, the results indicate that South African firms are using performance evaluation more to control the activities of their managers. Rewarding managers, evaluating managers, motivation and control were rated highest while planning, training and learning were rated lowest. The low ranking of planning and training/learning suggests that future aspects of performance evaluation are being ignored. This may affect the value of the firm in the long term.

Question 9.3 requested respondents to indicate their present position regarding the introduction of the Balanced Score Card (BSC). The survey results are presented in table 6.28.

Table 6.28: Adoption of the balanced score card

Statement	No. of responses	Percentage	Rank
No discussions taken place	21	40.4%	1
Decided not to introduce BSC	5	9.6%	4
Some consideration is being made	5	9.6%	4
We intend to introduce BSC	10	19.2%	3
BSC has been introduced	11	21.2%	2
Total	52	100%	

The findings in table 6.28 show a relatively low level of adoption of BSC among responding firms (21.2%) while 9.6% have decided against adoption. However almost half of the respondents have not yet had any discussion on the matter, which may suggest that BSC is still in the early stages of evolution. This is further supported by the fact that ten respondents (19.2%) indicated that they intend to introduce BSC. Hoque and James (2000) found considerable usage of the BSC approach in Australian manufacturing firms. In the UK, Burns *et al* (1998) reported that 60% of the responding companies were using non-financial measures. Horngren *et al* (1999) also reported widespread use of non-financial measures of performance amongst South African firms.

The Chi-square revealed that there is no significant relationship between the introduction of the BSC and the industrial classification and age of the company. However as was expected, there is a significant difference between the size of those respondents who had introduced BSC and those who had not ($Z = 1.968$).

Table 6.29: Importance of BSC performance measures

Measure	Extremely Important	Above Average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
Financial	11	-	-	-	-	1
Customer	8	2	1	-	-	2
Internal business	-	4	6	1	-	3
Learning and growth	1	3	6	-	1	3

n=11

Question 9.4 asked the respondents to rate the importance of the measures used in the BSC. The findings, which are presented in table 6.29 above, show that the financial measure was ranked highest. The customer perspective was ranked second, followed by internal business and learning and growth. These findings are consistent with the recent empirical evidence, which states that the financial perspective is still the dominant measure used by companies world-wide (Ittner *et al.*, 1997; Hoque and James, 2000; Hoque *et al.*, 2001). The low ranking of learning and growth is likely to have a negative effect on the future value of the responding firms. Kaplan and Norton (1992) points out that although the customer-based and internal business measures on the BSC identify the parameters that the company considers most important for competitive success, these targets keep on changing. Success can only be maintained if the company has the ability to innovate, improve and learn.

6.3.9 Standard costing

Question 10.1 requested the respondents to indicate whether or not their company currently operates a standard costing system. Nineteen respondents (36.5%) reported that they were currently operating the system while the other 33 respondents (63.5%) were not. These findings are inconsistent with those of Drury *et al.* (1993) who reported that 74% of the companies surveyed operated a standard costing system. However it should be noted that Drury's study surveyed manufacturing firms while

this study surveyed the market. The high usage of standard costing in the UK may be attributed to the stability of the UK's economy, which make standards more meaningful. In developing countries however, the rapidly changing economic environment may render the use of standards meaningless.

Question 10.3 asked the respondents to indicate how frequently the standard costs were normally reviewed. The results are shown in table 6.30 below.

Table 6.30: Frequency of review of standards

Frequency	No. of respondents	Percentage
Continuously	5	26.3%
Monthly	6	31.6%
Quarterly	5	26.3%
Semi-annually	2	10.5%
Annually	1	5.3%
Total	19	100%

The findings in table 6.30 indicate that most of the respondents review their standards within three months (84.2%). These findings are consistent with the literature in chapter three which stresses the need to review standards as frequently as possible due to the rapidly changing business environment that is associated with developing countries. In the UK, Drury *et al* (1993) reported that 68% of the respondents using standard costing only reviewed their standards once a year. Again this may be attributed to the stability of the UK economy.

Question 10.2 asked the respondents to indicate whether their companies had used a standard costing system during the last ten years. Thirty-five respondents (67.3%) reported that their companies had used the system, while seventeen respondents (32.7%) reported that they had not operated the system. Horngren *et al* (1999) reported that 75% of the South African businesses interviewed operated a standard costing system. Although Horngren's study dealt with manufacturing companies unlike this study that dealt with the market, the finding suggest that there has been some change.

In summary, while 67.3% of respondents reported having used the system in the last ten years, only 36.5% of the respondents are now using standard costing. This means that 30.8% of the respondents have stopped using the standard costing system, an indication that change has taken place.

Question 10.4 asked respondents to indicate whether or not variances are investigated in their organisations. Thirty-eight out of the 43 respondents reported that this was being done. Question 10.5 further asked the respondents to rate the importance of several purposes of variance investigation. A summary of the research findings is presented in table 6.31.

Table 6.31: Importance of variance investigation

Purpose	Extremely Important	Above Average Importance	Average Importance	Not Important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
Control	36	5	2	-	-	1
Evaluate managers	6	17	10	6	4	3
Preparation of budgets	7	8	20	5	3	4
Set standards	19	5	6	8	5	2

n=43

According to these findings control was rated highest while preparation of budgets was ranked lowest. Forty-one respondents (95%) rated control as an extremely important/above average importance purpose of variance investigation while only fifteen respondents (35%) rated preparation of budgets as extremely important/above average importance. Control is therefore considered a more important purpose of variance investigation than preparation of budgets. The low levels of corporate governance experienced in developing countries create the need for stringent control systems, more so where decision rights are assigned to low-level managers. The literature also suggests that variance investigation was mainly developed for control

purposes (Johnson and Kaplan, 1987). The findings of this study are therefore consistent with this view.

6.4 Other aspects of management accounting

Questions 11.1-9 attempted to investigate the presence or absence of Strategic Management Accounting (SMA) in the responding organisations. Questions 11.10-16 investigated issues of management accounting change.

6.4.1 Strategic management accounting

Question 11.1 asked the respondents to describe their source of management accounting information. Thirty-four respondents (65.4%) reported that management accounting information was obtained both internally and externally. The remaining eighteen respondents reported that management accounting information was obtained internally. The external focus of management accounting suggests the existence of strategic management accounting amongst the responding South African firms. No respondent reported that this information was obtained externally only. This added validity to the responses.

Question 11.2 asked respondents to indicate whether profits were analysed in their organisations. All the respondents responded in the affirmative. Question 11.3 further asked the respondents to indicate the manner in which profits were analysed. The research results are presented in table 6.32.

Table 6.32: Methods of analysing profits

Method	No. of responses	Percentage	Rank
Customer	23	44.2%	2
Product	33	63.5%	1
Department/unit	15	28.8%	3
Region/country	2	3.8%	4
Total	52	140.3%	

NB: Total percentage greater than 100% due to multiple responses.

According to these findings, most of the respondents (63.5%) analysed their profits by product, while two respondents (3.8%) used regions/countries. Twenty-three respondents (44.2%) analysed profits by customer. Drury and Tayles (2000) reported that 74% of the responding companies in the UK analysed profits by customers. In

developing countries however information about the firm's customers may not be available or may be very expensive to obtain. Such information is readily available in developed countries. Despite this limitation, the research shows a high focus on customer profitability, which suggests the use of strategic management accounting amongst South African firms.

Question 11.4 asked the respondents to indicate the three most important key drivers in generating profits. The survey findings are presented in table 6.33.

Table 6.33: Key drivers in profit generation

Driver	No. of responses	Percentage	Rank
Cost mgt	43	82.0%	1
Customer classification	20	38.4%	4
Asset utilisation	22	42.3%	3
Quality control	17	32.6%	5
Credit control	24	46.1%	2
Prod. control	8	15.3%	7
Product planning	9	17.3%	6
Distribution	8	15.3%	7
Investment decisions	7	13.4%	8
Others	5	9.6%	9
Total	52	100%	

According to these findings, cost management was rated highest, scoring 82%, while credit control, asset utilisation and customer classification were ranked second, third and fourth respectively. Other profit drivers mentioned by the respondents include sales, price and quality of customer service, which obtained a score of 9.6%. The high rating of cost management and quality control among the respondents suggests a need for the companies to reduce waste and utilize available resources more effectively. Furthermore the high rating of credit control indicates a high risk of non-payment of debts hence the need for a stringent credit policies so as to minimise bad debts. Also the high rating of asset utilisation suggests a high need to increase effectiveness amongst the responding firms. Overall the findings indicate the need to reduce waste and value creation.

Question 11.5 asked the respondents to indicate the extent to which the organisation analysed its product costs and cost structures in order to understand the business operations in greater depth. The results are shown below.

	Never	Rarely	Sometimes	Often	Always
N= 52	1.9%	3.8%	11.5%	48.1%	34.7%

Forty-three respondents (82.8%) often/always analysed their product costs and cost structures in order to understand their business operations in greater depth. Only one respondent (1.9%) indicated that this was never done. A mean score of 4.1 was achieved on a scale of 1 (never) -5 (always). This means that, to a great extent, analysis of product costs and cost structures was being done. The research findings again indicate a high emphasis on cost management in South Africa. The widespread use of budgets for control, waste reduction through process analysis and cost management techniques and the use of non-financial measures of performance such as customer satisfaction suggest that management accounting in South Africa is now in the third of the four stages of management accounting development suggested by the International Federation of Accountants in 1998.

Question 11.6 asked the respondents to indicate the extent to which their organisations estimated the product costs and cost structures of competitor's products in order to compare them with their own. The results are shown below.

	Never	Rarely	Sometimes	Often	Always
N= 52	7.7%	7.7%	15.3%	38.5%	30.7%

Thirty-three respondents (69.2%) often/always estimated the product costs and cost structures of competitor's products in order to compare them with their own. Only four respondents (7.7%) indicated that this was never done. A mean score of 3.8 was achieved on a scale of 1 (never) -5 (always). This means that this form of benchmarking is being practiced to a large extent amongst South African firms. These findings are consistent with those of Guilding, Cravens and Tayles (2000) who reported 5.27 on a scale of 1 to 7 in a study involving New Zealand, the UK and USA.

This suggests that South African competitor cost analysis practices may be at par with those of developed countries.

Question 11.7 asked the respondents to indicate the emphasis placed by their organisation on certain specified strategic priorities over the last decade. The research findings are presented in table 6.34.

Table 6.34: Emphasis placed on strategic priorities

Strategic Priority	5-Great Emphasis	4	3	2	1-No Emphasis	Total Score	Proportion. %	RANK
	Score	Score	Score	Score	Score			
High quality products	180	48	9	-	1	238	22.2	1
Low production Costs	50	48	60	14	3	175	16.3	4
Unique product features	100	64	30	6	3	203	18.9	2
Lower prices than competitors	25	12	54	30	11	132	12.3	6
Customize products	70	72	27	12	5	186	17.3	3
Serve only a market segment	30	36	27	34	11	138	12.8	5
Total						1072	100	

n=52; Alpha= 0.77

According to these findings, providing high quality products/services was rated highest with a score of 22.2%. Providing unique products features was ranked second with a score of 18.9%, while lower prices than competitors was ranked lowest with 12.3%. Thirty-six respondents (69%) indicated that they placed great emphasis on the provision of high quality goods. Only five respondents (10%) indicated that great emphasis was placed on offering lower prices than competitors. Providing high

quality goods is therefore considered more important than offering lower prices than competitors. This is in line with the current global trends where quality is being viewed as the main tool for the attainment of a sustainable competitive advantage. The establishment of the International Standards Committee (ISO) and the number of companies trying to get the committee's certification supports this view.

To link the strategic priorities adopted by the respondents to the three generic strategies suggested by Porter (1985), the scores for "high quality products" and "providing unique product features" were aggregated and divided by two to get the differentiation scores. This method was initially suggested by Khandwalla (1977) and later used by Libby and Waterhouse (1996). Similarly the scores for "low production costs" and "lower prices than competitors" were used to compute the low cost strategy score, while the scores for "customize products" and "serve only a given market segment" were used to obtain the niche focus strategy. Differentiation was ranked highest with a score of 41.2%, followed by focus which scored 30.2%, while low cost was rated lowest with a score of 28.6%. Differentiation strategies therefore rank highest amongst South African firms suggesting the companies' need to create value for the customer.

In summary offering high quality goods and unique product features are considered to be the main source of competitive advantage amongst South African firms.

The Chi-square test revealed no significant relationship between the company's size, age or industrial classification and the strategic priorities adopted by the company.

The threats facing the companies are presented in table 6.35.

Table 6.35: Company's major threats

Threat	Extremely Important	Above Av. Imp	Average importance	Not important	Irrelevant	Rank
	Score	Score	Score	Score	Score	
Global competition.	16	14	6	4	8	3
Local Competition	17	18	6	4	3	2
Lack of raw materials	3	7	12	12	18	7
Lack of Capital	2	10	22	13	5	6
Lack of skilled manpower	9	16	19	5	3	4
Changes in technology	22	14	10	4	2	1
Poor infrastructure	4	11	31	4	4	5

N=52

According to the findings, changes in technology was ranked as being the highest threat, followed by local competition, while lack of raw materials was ranked lowest. Of the 52 respondents, 22 and 17 respondents classified changes in technology and local competition respectively as extremely important threats. Further, 16 respondents classified global competition as an extremely important threat. The increase in global competition is mainly attributed to the liberalisation of the South African economy in the early 1990's. Only three considered lack of raw material as an extremely important threat. Eighteen respondents (34.6%) classified lack of raw materials as being irrelevant while another 12 respondents classified it as not important. Both changes in technology and competition are considered greater threats than lack of raw materials. It is worth noting that South Africa is more a producer of a raw materials than of finished goods, hence raw materials are not expected to be a serious threat.

In summary both competition and changes in technology are the major threats facing South African firms. This may have resulted in the need to change the management accounting practices.

Question 11.8 asked respondents to indicate the extent to which the competitive environment faced by their major products/services has changed during the last decade. The results are shown below.

Significantly decreased					Significantly increased
1	2	3	4	5	
0	1.9%	11.5%	26.9%	59.6%	
N=52					

Thirty-one respondents (59.6%) indicated that the competitive environment faced by their major products/services had significantly increased during the last decade. A mean score of 4.5 was obtained on a scale of 1 (significantly decreased) - 5 (significantly increased). This means that the competition on the respondent's main products has drastically changed during the last decade. These findings agree with the literature in chapter four.

Question 11.9 asked the respondents to indicate the extent to which information is shared between the company and the other members of the value chain. The results are shown below.

	Never	Rarely	Sometimes	Often	Always
N= 52	0	17.3%	32.6%	40.4%	9.6%

Twenty-six respondents (50%) indicated that information was often/always shared with their suppliers and customers. A mean score of 3.4 was obtained on a scale of 1 (never) - 5 (always). These results suggest some degree of supply chain management amongst the subject South African firms. The evidence also suggests that management accounting in South Africa is becoming more and more outward looking as recommended in the literature (Horngren *et al.*, 1999).

In summary, management accounting in South Africa is outward looking (information is sourced both internally and externally). Profit analysis is mainly based on products and customers, product costs and cost structures of competitors are compared with those of the company while company information is usually shared with the other members of the value chain. These findings suggest that strategic management accounting is present amongst South African firms.

6.4.2 Management accounting change

Question 11.10 asked the respondents to indicate the extent to which the competitive environment has affected the company's cost/management accounting system. The results are shown below.

No effect	Not significant	Average significance	Above average significance	Very significant
1.9%	9.6%	15.3%	34.6%	38.5%
N=52				

Thirty-eight respondents (73.1%) indicated that the competitive environment has had a very significant/above average significant on their company's cost/management accounting system. A mean score of 3.9 was obtained on a scale of 1(no effect) – 5(very significant effect). In addition respondents were asked to comment on the change. Although only sixteen companies responded, they reported that there was a constant need to upgrade the management accounting systems to assure the company's success. Twelve respondents mentioned the need for better costing methods as there was more emphasis on cost reduction while two respondents felt that the competition was mainly from direct imports by their customers and hence there was very little that cost accounting could do to assist them. However, in a liberalised economy, companies compete with the best companies in the world. Cost/management accounting techniques can assist companies operating in developing countries to manufacture quality products at costs that match those of the best in the world.

Question 11.11 asked respondents to indicate when the last significant changes were made to the company's cost/management accounting system. All the respondents

indicated that there has been some degree of change to their cost/management accounting system. The research findings are summarised in table 6.36.

Table 6.36: When significant changes were made

Period	No. of responses	Percentage	Rank
Within last 2 years	26	50.0%	1
2-5	16	30.7%	2
6-10	8	15.4%	3
Over 10 years ago	2	3.9%	4
Total	52	100%	

According to these findings 26 respondents (50%) reported that the most significant changes were made within the last two years while only two respondents (4%) reported that the changes were made more than 10 years ago. These findings add validity to the data collected since most of the changes have occurred during the last decade (period covered by the study).

Respondents were then asked to describe any significant changes, which have been made within the last 10 years. Several respondents reported that they had replaced the standard costing system, while others reported the introduction of modern management accounting systems (ABC, BSC, JIT and ABB). Thirteen respondents reported that more emphasis was now being placed on detailed analysis of costs. Six respondents reported that they have since increased the number of management accounting reports and the frequency of reporting. An example of a new report cited by the respondents is that of information by customer classes and products.

Question 11.12 asked the respondents to indicate the reasons for the management accounting changes that had been made. The most frequently cited reason was the change in competition and hence the need to maintain competitiveness. This had resulted in the need for more timely and accurate information. Changes in technology and the introduction of new accounting packages ranked second. Inadequacy/dissatisfaction with the standard costing system was the third most frequently mentioned reason for the need to change. Other reasons mentioned in the responses include: the need to improve communication and efficiency of the management accounting reports, harmonize the global reporting system, the need to

meet customer and new shareholders' requirements and the need to motivate staff and make them more customer focused.

Question 11.13 asked the respondents to list some of the benefits that have been achieved as a result of the changes made. Most respondents felt that it was too early to comment on the benefits since the changes had only been made a few years ago. This view is supported by the fact that 50% of the respondents who reported that the most significant changes had been made within the last two years. For those who responded to this question, quality of information and quicker reporting were the most frequently mentioned benefit. This, they stated, has improved their decision making process. More control over expenses and the resultant cost saving was the second most mentioned benefit, followed by ability to identify non-performing divisions, customers and products and the ability to understand the business better. Several respondents reported that they were now able to identify areas that require attention and are hence able to take remedial action in good time.

Question 11.14 asked the respondents to indicate whether their companies were planning to make changes to their cost/management accounting systems in the next two years. Twenty-five respondents (48%) reported that there were plans to make such changes while the remaining 27 respondents (52%) indicated that no such plans existed. Respondents were further requested to indicate the nature of the planned changes. Most of the respondents reported the introduction of new accounting systems such as ABC, BSC and EVA. The need to develop a more focused costing method based on activities was reported by eleven respondents. Several respondents mentioned the need to establish a set of industrial standards to be used as benchmarks. This they said would assist management accounting to become more externally focused.

Question 11.15 asked the respondents to indicate the most significant cost/management accounting problems, which they felt their companies needed to address. Most of the respondents reported that keeping costs low was the most significant area that required attention. Making management accounting information

accessible to all staff ranked second, while increasing the timeliness and accuracy of management information was the third most frequently mentioned problem. Several respondents felt that there was a need to introduce modern management accounting techniques such as ABC and JIT in their organisations but this was hampered by the costs associated with the introduction of these systems. JIT was felt to be desirable but made difficult by the poor supply chain systems in the country.

Change was also looked at from the perspective of the extent to which South African companies had adopted modern management accounting techniques. As mentioned elsewhere in the report, 11.7% of the respondents had already introduced ABB. 32% of the respondents had already introduced ABC, while 17% intended to introduce ABC. Of the fifteen companies, which had introduced ABC, nine had more than twenty product lines, fourteen indicated that the existing big players were their main competitors, while ten had overhead cost proportions of over 50%. In regard to competition, nine out of the fifteen companies reported that the extent of competition faced by their major products had increased significantly, while eleven reported that the competitive environment had affected their costs/management accounting systems very significantly. These reasons agree with the reasons advanced by the literature in support of the introduction of ABC (Cooper and Kaplan, 1988; Drury and Tayles, 1995).

As mentioned elsewhere in this thesis, both BSC and JIT are also gaining popularity amongst South African firms. The fact that these two new techniques have been implemented in South Africa is yet another indication that management accounting practices have changed during the last decade.

The Chi-square tests revealed no significant relationship between the adoption of the modern management accounting techniques and the domicile (either local or foreign) of the company.

Question 11.16 asked the respondents to list the most important benefits that had accrued to their organisation from the use of modern management accounting techniques. The most frequently cited benefit was that management was now able to understand their business better. This results in the ability of management to pick up weaknesses or problems in a more timely fashion. The second most frequently reported benefit was that these systems have enabled management to create value for their shareholders and customers. Thirdly the system is now able to produce accurate and timely information resulting in better decisions. A few respondents stated that the techniques when used well, usually result in lower costs and hence more profitability.

6.5 Summary and conclusions

6.5.1 Management accounting practices

The data findings reported herein show that the management accounting practices advocated in academic literature are being applied in South African firms. There does not appear to be a significant gap between the theory of management accounting and practice. Consistent with the findings of Sharma (2000), modern management accounting practices are being used together with traditional practices. This study locates management accounting in South Africa at the third of the four stages of management accounting evolution suggested by the IFAC in 1998. The high emphasis on cost management and the widespread use of flexible budgets for control purposes indicate that South African firms are striving to reduce waste in their production processes. The increased use of ABC and the emergence of ABB amongst the responding firms suggest a move towards the elimination of non-value adding activities and hence waste reduction.

There is a widespread use of simple cost allocation methods mainly despite the high proportions of indirect costs reported in this survey. The situation contrasts with that in developed countries where high proportions of indirect costs have resulted to the widespread use of activity based cost allocation methods. Where modern management accounting practices are used to allocate indirect costs to products there is a tendency to supplement their use with the traditional methods. Most of the respondents used subjective methods based on managerial experience to classify these

costs. In regard to decision making the research found that most of the respondents used incremental costs. It is however not clear whether the respondents understood the short run/long run implications of costs classification. Despite this limitation, the research findings are consistent with the literature in chapter 3.

In regard to variance investigation, the research findings are that the practice was mainly carried out for control purposes. This is consistent with the literature that suggests that variance investigation was mainly introduced for control purposes (Johnson and Kaplan, 1987). However a decline in the use of this practice was noted amongst South African firms. Most of the respondents had abandoned standard costing. The rapidly changing business environment was quoted as the main reason for the abandonment of the standard costing system. According to the respondents, the changing circumstances usually rendered standards irrelevant.

6.5.2 Strategic management accounting

The findings support the presence of strategic management accounting practices amongst South African firms. Management accounting information was sourced both within and outside the firm, there is a high focus on customer profitability while most of the respondents compared their product costs and cost structures with those of their competitors' products. Most respondents used differentiation strategies to compete in the market place. In this regard provision of high quality products with unique features was considered to be the main source of competitive advantage.

6.5.3 Management accounting change

The findings also indicate that there has been a significant change in the management accounting practices in South Africa during the last decade. This change has been both in the introduction of modern management accounting techniques and the way such techniques are used. The change is attributed to the rapid increase in competition locally and internationally. Hence a need for the firms to change their management accounting systems so that they can use information for making effective decisions to be competitive in the marketplace.

Chapter seven will explore more factors that have facilitated management accounting change. The factors that have hindered this change and the perceived benefits of the change will also be discussed.

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CHAPTER SEVEN

DATA ANALYSIS FIELD STUDY

"A comparative advantage of case/field study research is to investigate the presence or absence of management accounting. For example, field study research can investigate settings in which management accounting is not present but is theoretically predicted to be present and investigate why it is not present and what if any are the consequences, including the presence of substitutes" (Choudhury, 1988:549).

7.1 Introduction

This chapter presents data findings of a field study conducted between September and October 2001. The first section describes the sample and the methods used to collect the data. The second section presents data findings on the management accounting practices and change in the responding companies corresponding to the third research question. The third section presents data findings on the factors that have facilitated or hindered management accounting change corresponding to the fourth research question. The fourth section presents data findings on the perceived benefits of management accounting change corresponding to the fifth research question. The chapter ends with a discussion on whether or not modern management accounting practices are considered appropriate for companies operating in developing countries. This corresponds to the second research question.

7.2 Background

A letter (Appendix 7) requesting the finance managers to participate in a face-to-face interview was sent to seven companies, which had earlier responded to the questionnaire survey. The companies were selected on the basis of their size and past financial performance. For example the Business Times rated four of the selected companies among the top fifty South African companies in December 1999. Large and better performing companies have the ability to change their management accounting practices as circumstances in their operating environment changes (Argyris and Kaplan, 1994). Two of the selected companies refused to participate in

the study citing confidentiality of the information sought and lack of time as reasons. The characteristics of the five participating firms are shown in table 7.1 below.

Table 7.1: Characteristics of the subject firms

Firms	Age in years	Business scope	Turnover in billion rands	No. of employees	No. of qualified accountants	Three year average annual operating income (million rands)
A	Over 20	International	6	10000	35	330
B	Over 20	"	7	28000	14	180
C	Over 20	"	0.4	150	7	160
D	6	"	3	5000	8	130
E	Over 20	"	2	6000	11	170

An interview guide (Appendix 4) together with an interview questionnaire (Appendix 5) was sent to the finance directors/managers of the participating companies a week before the date of the interview to allow them time to prepare. The principal researcher conducted all the interviews and no attempts were made to lead the interviewee's answers to questions nor were opinions expressed during the interviews on any statements made. The interviewees were however allowed to ask as many questions as they wished during and after the interview. The interviews took between 1½ to 2 hours. The interviews were the main source of the data analysed in this chapter. However the researcher had reviewed other publicly available information relating to the responding companies before the interview (e.g. the stock exchange handbook, McGregor; Who-Owns-Who (1999,2000) and the Internet). The information reviewed from these sources was then collaborated during the interview. The interview data was also supplemented by viewing copies of the management accounting reports that were available in the department. Examples of the reports reviewed include: the organisation/departmental chart, budgets, market survey reports, cost analysis reports and the strategic plans.

The data collected was analysed and interpreted in two stages. Initially data collected on management accounting practices within each firm was analysed and interpreted within the context of that firm. For each firm, the analysis concentrated on how and why the pattern of observation and information about each case is consistent or inconsistent with theory. This mode of analysis is referred to as pattern matching (Yin, 1994: 106). According to Yin (1994), four tests have commonly been used to establish the quality of each empirical social research. These include: 1) construct validity, 2) internal validity, 3) external validity, and 4) reliability. In this study construct validity was addressed through using multiple sources of evidence, internal validity was addressed through use of pattern matching, external validity through use of replication logic and reliability through the use of the questionnaire and the interview guide.

The second phase of the analysis focused on cross case analysis and comparison of the results. Results from each case were considered to be findings that were subject to replications by other individual cases. If the findings obtained in subsequent cases were also consistent with the theory, the research concluded that the validity of the theory had been strengthened. If the pattern obtained in the second case was similar to the pattern in the first case, this was interpreted as a replication. The research also tried to understand and explain any deviations of the patterns from the theory.

All five participating companies requested complete confidentiality of the information given. In view of this the participating companies' names have not been used in the report and the companies will henceforth be referred to as A, B, C, D, and E.

7.3 Management accounting practices and change

Libby and Waterhouse (1996) conceptualised change as the extent to which changes are adopted in a given period, or the extent to which changes are integrated into operations (Downs and Mohr, 1976; cited by Libby and Waterhouse, 1996). In this study, change was measured by the number of changes in the management accounting systems that were adopted by the responding organisation during the last decade,

regardless of the extent to which the changes were integrated into daily operations. This approach was adopted since many different types of changes were being examined, making it difficult to measure the extent of the adoption of all the changes. This study therefore focuses on changes within the firm, that is, intra-organisational process of change.

Libby and Waterhouse (1996) expressed the change variable as an absolute count rather than the number of changes relative to the number of systems present in the organisation. They rejected proportionate change since their interest was in the amount of change relative to the population of possible changes rather than the number of existing systems. This study has a similar interest and therefore takes the base rate of change as the population of management accounting changes during the last decade rather than the number of existing systems in an organisation at a point in time.

A list of 27 different management accounting systems divided into five main types: planning, controlling, costing, directing and decision making was provided to the respondents (Appendix 5). Twenty-three systems were adopted directly from Libby and Waterhouse (1996), while the other four were identified through an extensive review of current management accounting literature (e.g. Kaplan and Atkinson, 1998; Horngren *et al.*, 1999; Drury, 2000; Sharma, 2000). The interviewees were invited to add any other system that existed in their organisation but none of them did so.

The respondents were asked to indicate the systems that were present in their organisation as at the date of the interview. The respondents were again requested to indicate those systems that had changed during the last decade. The results of the interviews on the management accounting systems in the companies visited are described below:

7.3.1 The interview reports

Company A

This company was founded in the 1930's and is listed on the JSE under the retailing category. The company deals mainly with clothing and cosmetics focusing on quality and customer service. It has an annual turnover of over 5 billion Rand and employs over 10,000 people. It has branches both in South Africa and abroad.

Management accounting practices

1) Planning systems

The company currently operates a formal, budgeting system. The master budget is prepared every year but revised every quarter for any changes that had not been taken into account at the beginning of the financial period. This researcher confirmed this by reviewing the recent copies of budgets that were held in the department. We may therefore say that the company operates a revolving budget. The respondent however advised that this form of budgeting was only introduced four years ago after the company realised that the then fixed budget usually resulted in unrealistic variances at the end of the year.

Forecasting of sales revenue was based on sales revenue relating to the previous year. This was normally increased by a certain percentage decided by senior management. Prices were determined at head office using the cost plus profit method. Divisions and branches were required to submit monthly profit reports until two years ago when the company computerised its reporting system. Presently senior management is able to access this information online and hence the reports are no longer required.

Capital investment appraisal is presently being done using the NPV capital appraisal method. Before computerisation however the pay back period (PBP) was the most commonly used method. The respondent however emphasised that the company usually adopts more than one method to appraise capital investment projects, which include managerial judgment. In several cases the company had initiated projects that would have been rejected if the formal accounting methods had been used in isolation (e.g. in the establishment of new branches). These findings are consistent with those of Hoque and Hopper (1994).

The company maintained a five-year strategic plan. This plan, which was viewed by the researcher, was usually adjusted annually in accordance with changes in the operating environment. The respondent however advised that such adjustments only became necessary after the liberalisation of the South African economy in 1993/94. Before then the operating environment was relatively stable and hence such adjustments were not necessary

2) Control systems

The most important control systems in the organisation were the team based performance measures. The company used both financial as well as non-financial measures to measure the performance of its managers and divisions. Some of the notable performance measures include: the ratio of selling and buying price, gross revenue per square metre used and income per head.

Organisation performance measures were mainly based on financial measures such as; increase in turnover, gearing, increase in profits, ROCE, and ROI. However performance in terms of quality, customer satisfaction and delivery innovations were in the early stages of introduction. For example, in the company's food business, customers were promised a refund of their money if their orders were not delivered within a specified period of time. Such refunds were debited to the department that caused the delay.

3) Costing systems

Overhead costs were allocated to products using simple allocation bases such as turnover, square metres and cost of direct labour. The proportion of indirect costs was considered too low to necessitate the introduction of ABC.

Pricing of inter-divisional transfers was mainly based on negotiation between the departmental heads. However the respondent advised that it has since been established that this was causing delay and, at times, conflict among divisions. Consequently the

In total, the company has in place 20 out of the 27 management accounting systems listed in the questionnaire. Sixteen of these systems have changed during the last decade. The manner in which the factors facilitating management accounting change were computed is described in section 7.4.

6) Factors facilitating/hindering management accounting change

The respondent was asked to indicate the factors that had facilitated/hindered management accounting change in the company during the last decade. The response to this question was that the increase in international competition, changes in technology and new shareholders had precipitated the change. Lack of computing resources, lack of adequate accounting skills and fear of change hindered management accounting change.

COMPANY B

The company was founded in the 1960's and is listed on the JSE under the retailing sector. It deals with retailing food, clothing and general merchandise. The company employs over 20,000 people and has branches throughout Southern Africa. It has an annual turnover of over 7 billion Rand.

Management accounting practices

1) Planning systems

The company operates a formal budgeting system. A master budget is prepared every six months and is revised every month for changes that had not been accounted for at the beginning of the period. The company uses ZBB to prepare its budgets although it intends to introduce ABB in the near future. The respondent advised that ZBB though superior to the other methods, had been found to be too expensive. ZBB was introduced six years ago after the company realised that the incremental budgets that were being used resulted in unrealistic variances at the end of the period. The respondent advised that too much money and time was being spent investigating these variances.

To forecast sales revenue, the company mainly uses the past experience of its senior managers. This information is supplemented by other information obtained from market research mainly conducted by the company's sales team. Once a year the company engages the services of an outside consultant to conduct a market survey on behalf of the company.

NPV is the most widely used method for capital investment appraisal. This method was adopted in 1996 after the company realised that the PBP method that was being used might yield misleading results due to the changing business environment. The respondent was however quick to point out that NPV is never used in isolation. Other methods are also applied depending on the size of the project. For example the company uses PBP for investments that are considered small. In all cases, the final decision on whether or not to implement a project or not is vested in the judgement of senior management. Several projects have been implemented in the past although they had failed to pass the accounting test.

The interviewee pointed out that strategic issues such as the type of business and market to trade in were determined by senior management, of which he was a member. The company's strategic plan covered a period of five years but was under constant revision for any changes in the operating environment. Asked how long the company had maintained a strategic plan the respondent had this to say:

"For as long as I can remember and I have been in this company for the last 25 years".

2) Control systems

The company placed a high emphasis on team performance. Team performance measurements were mainly based on divisional profits and/or reduction of losses, profits per head, customers per head, number of customer complaints in the division and number of staff trained during the period. Recently the company had introduced economic value added as a measure of divisional performance. Individual performance measures were mainly based on the extent to which the individual

attained the goals set at the beginning of the period. An interesting measure was of the extent to which the individual had participated in theft and fraud prevention.

Organisational performance measures were mainly financial. According to the respondent the most common ones include: profit, ROI, turnover, gearing and dividend paid out. Several non-financial measures had recently been introduced, notably the cost of quality measure. The company produced cost information of the following:

- 1) Cost of failure (based on customer returns)
- 2) Cost of prevention (based on quality inspections and supplier evaluation)

Organisational performance was also based on the extent to which the company had increased its market share. This evaluation was based on the outside consultancy report mentioned earlier.

3) Costing systems

The company separated its costs into their fixed and variable components. This classification was based on past managerial experience. To allocate indirect cost (mainly marketing and branding costs), the company used simple cost allocation bases such as turnover, square metres and cost of direct labour. The respondent advised that the company was currently 60% satisfied with the product costing system. The company intends to introduce ABC in the near future.

The company's divisions commonly used the total cost of producing a unit plus a percentage of profits for transfer pricing. The mark-up is set by head office and is applied across the organisation.

4) Directing systems

In addition to the bonus reward system that the company introduced in the mid 1990's, the company has introduced a system whereby the company sponsors highly performing individuals for overseas trips. Cash rewards and recognition certificates are awarded to those employees who are able to prevent theft and fraud.

5) Decision making

As in the case of the previous company, decision making had experienced the highest degree of change during the last decade. Information was now being reported more frequently. For example reports that were previously prepared on a monthly/quarterly/semi-annual basis are now produced weekly or daily (as and when they are required). This has been facilitated by the now easily available information that previously took a long time to obtain. The respondent attributed this success to the computerisation of the accounting department in the mid 1990's.

The company is now able to utilise non-financial information in decision-making, since this data is now available. Examples of the non-financial measures now used by the company include: customer satisfaction, cost of quality and on-time delivery. Asked to comment on the effect of the use of non-financial measures on the company's decision making process, the respondent had this to say:

"The main advantage of these measures is that they allow us to think beyond numbers. These measures are able to give us an indication of the direction our business is taking".

Since the completion of the computerisation process, the management accounting department is able to report its information more broadly, that is, more managers are able to view the reports online, long before management meetings. This has greatly reduced the time taken in such meetings and has also improved the quality of the decisions made.

The company has in place 24 out of the possible 27 management accounting systems listed in the questionnaire. Twenty-two of these systems have been changed during the last decade.

6) Factors facilitating/hindering management accounting change

The respondent saw change in the operations of the business as the main factor that had facilitated management accounting change. He attributed these changes mainly to:

- Increase in both local and international competition after the liberalisation of the South African economy
- Changes in production and information technology
- Changes in customer demand; the customer now demands goods and services of a very high quality but at low cost

The following factors were identified as having hindered management accounting change:

- Fear of change
- Lack of resources to finance change
- Problems of communication with line management
- No need for change

COMPANY C

The company was founded in the 1960's and is listed on the JSE under the hotel and leisure category. The company is involved in the establishment, marketing and control of franchised restaurants mainly targeting the sit-down services family market. It also manufactures and sells restaurant supplies to its franchisees. The company has operations in South Africa and in over eighteen other countries and directly employs 150 people. The company's annual turnover is approximately 150 million rand.

Management accounting practices

1) Planning systems

The company operates a formal budgeting system that was introduced in 1995. Before then the company did not operate any budgeting system. The company's budget is prepared for a 12-month period but adjusted every quarter for any changes that have occurred in the operating environment. The master budget is prepared by increasing/decreasing the costs and revenues of the previous year's budget. Therefore the company operates a flexible budget prepared on an incremental basis. Asked why the company decided to introduce a budgetary system after operating successfully without one for over 30 years the respondent had this to say:

“Liberalisation of our country’s economy in the early 1990’s greatly affected the competitive environment. This increased the need for us to allocate the company’s resources better as we now had more players in the market”.

The above change involved a change in rules (budgeting practices) and hence the emergence of new routines. The respondent advised that the introduction of this practice was well received by the organisation members hence the routines must have worked alongside the many other organisation routines already in place (Scapens, 1994; Burns and Scapens, 2000). When intentional changes remain firmly grounded in the existing routines and institutions, it is seen to be more evolutionary than revolutionary (Burns and Scapens, 1999, 2000).

Subjective estimates made by experienced staff were the main method used by the company to forecast sales revenue. However the company at times engaged the services of outside consultants to conduct market research on its behalf. A copy of a market survey completed in December 2000 was held in the department. Statistical regression forecasting methods were never used in the company.

NPV was the most commonly used method for capital investment appraisal. However, as was the case with the previous companies visited, this method was never used in isolation. Other methods together with managerial judgement were usually employed. The method to be used mainly depended on the size of the project, with NPV being used for large projects. NPV was introduced in 1995 after a new finance manager took office. Previously PBP was the most commonly used method.

2) Control systems

Unlike in the two previously discussed cases, team based measures are currently not being used by the company. The respondent attributed this to the low level of staffing in the company. Individual performance measures were mainly based on the extent to which the individual had achieved the targets set at the beginning of the period. These targets were set by the individual but discussed and agreed on with the immediate

supervisor. Ability to stay within the budget and accounting profits after overheads were said to be the main measures of managerial performance.

Organisational performance measures were based both on financial as well as non-financial measures of performance. Non-financial measures were said to have been introduced recently after management realised that financial measures alone were not adequate to measure the performance of the organisation. Measures such as customer satisfaction, quality and market share are now being used together with the financial measures such as profits, ROI, ROCE, and sales volume. The respondent advised that the company would soon install customer opinion boxes in all its major outlets.

3) Costing systems

Costs were being separated into their fixed and variable components on the basis of managerial experience. The respondent estimated that the company's indirect costs presently constitute about 20% of the company's total costs. Manufacturing and marketing costs were being allocated to individual products using direct material/machine hours/ direct labour costs as the allocation bases. The respondent felt that the current overhead costs proportion was too low for the introduction of ABC.

Transfer pricing in the company was based on the cost plus profit method. The mark-up was determined at head office and was applicable to all divisions.

4) Directing systems

In addition to the bonus reward system introduced three years ago, the company had established other staff incentive schemes such as what they referred to as 'the staff reactive program'. Under this program employees who came up with new ideas that were considered to be beneficial to the company were rewarded by way of cash, gift vouchers, certificates of recognition etcetera. Innovative employees were also encouraged to buy the company's shares with the help of subsidized staff loans.

5) Decision making

Decision making systems were the systems most affected by the change program in the last decade. In 1997 the company installed new computer software, which automated its reporting system. According to the respondent the effect of this has been that information is now reported more frequently and broadly (to many users at the same time). He stated that:

“The reporting system now focuses more on people. We try to make the information more understandable. We now report our information in form of graphs and charts. This makes the information interesting even to those who hate numbers”.

The decision makers now make use of both financial as well as non-financial information. Use of non-financial information has been made possible by the availability of information that was previously unavailable. He states:

“With the help of other departments like marketing we are able to know what is happening in our markets. For product design information, our production personnel are at hand to help. Unlike previously when we had to walk to these departments to get the information we required, we are now able to request it online. This company has never regretted the introduction of computer technology”.

The company has in place 14 out of the 27 management accounting systems included in the questionnaire. Nine of these systems have changed during the last decade.

6) Factors facilitating/hindering management accounting change

When the respondent was asked to indicate the factors that had facilitated management accounting change in the company during the last decade, he mentioned the following factors:

- Changes in the political system
- Increase in competition both locally and abroad
- New markets and hence new customers resulting from liberalisation and globalisation of the world economy

Factors hindering management accounting change were identified as:

- Lack of adequate computing resources
- Management inertia
- Lack of skilled accounting personnel

COMPANY D

The company was founded in the early 1990's after a former company sold its business to a wholly owned subsidiary. The company is listed on the JSE under the retail sector. It engages mainly in the discount retailing of toiletries, cosmetics and other merchandise in Southern Africa and abroad. The company currently employs over 5,000 employees and has an annual turnover of over 3 billion rand.

Management accounting practices

1) Planning systems

The company operates a flexible budgeting system. The master budget is prepared by increasing/decreasing the previous year's sales/costs. Before 1999 the company operated a fixed master budget, which was compared to the actual results at the end of the financial year. The company however realised that the huge variances, which required being investigated and explained usually occurred at the end of the year. After holding several brainstorming meetings, the company decided to replace the fixed budget with the current flexible budget.

The company mainly relies on the previous year's sales to determine the sales of the coming financial year. The company's top management usually decides the mark-up. Commodity prices within South Africa are also set by the company's head office although branch managers have limited discretion to vary these prices, as long as they are able to meet the targeted profits. Overseas prices are determined by the company officers in those countries but the target profit figures are always agreed on at the beginning of the period with the South African head office.

NPV is the most commonly used method in capital investment appraisal. However the method is normally used together with other capital appraisal methods such as PBP and IRR. The respondent advised that the company never uses the ARR as it is

considered inferior. The final implementation decision is however based on managerial judgement. The respondent cited cases in which the company had implemented projects that had failed the formal accounting appraisal method.

2) Control systems

Team based performance measures were considered more important performance measures than individual performance measures. The respondent explained that anything that was achieved by the organisation was as a result of teamwork and could not be tied specifically to an individual. Measures such as income per employee, turnover per head, turnover per square metre had recently been introduced in the organisation.

To measure the overall performance of the organisation both financial, as well as, non-financial measures were used. Non-financial measures were introduced during the last five years after financial measures failed to meet management's expectations. Performance measures in terms of quality: customer satisfaction and delivery innovations are now being used to supplement financial measures.

3) Costing systems

The company separated costs into their fixed and variable components. This classification is mainly based on managerial experience. Indirect costs were allocated to individual products mainly using activities performed as an allocation base. This allocation method was introduced two years ago after the company suspected that some of its product prices were not realistic. The company indicated that 40% of the total costs in the organisation are classified as indirect costs. Other allocation bases such as direct labour costs are at times used to supplement ABC. Although the company is divisionalized, transfer pricing is not used.

4) Directing systems

The respondent talked of frequent increases in monetary rewards to motivate its employees. However there are plans to introduce bonuses in the near future. The company has however introduced a new scheme, which is being used to assist

members of its staff to acquire the company's shares on the JSE. The respondent had this to say in praise of the scheme:

"In the long run we want to create an atmosphere where all of us feel like owners rather than employees of this company. Our staff have shown a lot of interest in the scheme and we have every reason to believe that we shall succeed".

5) Decision making systems

These are the systems that have experienced the most changes in this company during the last decade. The respondent associated this high rate of change with the introduction of fast computers that have made information easily obtainable. Consequently the management accounting department now produces reports more frequently than was done previously (before computerisation). Accounting information is also reported more broadly. For example, reports that were previously prepared and sent to one or two offices are now available online to all managers.

Associated with the timeliness and quality of information is the use of non-financial measures of performance in the company. Information such as customer complaints (previously held by customer relations alone) can now be obtained from the computer system.

The company has a total of 18 out of the 27 management accounting systems appearing in the questionnaire. Fifteen of these systems have changed during the last decade.

6) Factors facilitating/hindering management accounting change

The respondent attributed management accounting change to the following factors:

- Increase in local/global competition after the liberalisation of the South African economy
- Changes in technology: in particular information technology.
- Poor financial performance

In regard to the factors hindering management accounting change the following factors were mentioned:

- Lack of adequate computing facilities
- Management inertia
- Lack of trained accountants

COMPANY E

The company was formed in the 1940's and is listed on the JSE under the retail sector. The company deals with the retailing of fashion apparel and other related merchandise. It operates in the whole of Southern Africa and in the Middle East. Presently the company employs over 6,000 people and has an annual turnover of over 2 billion rand.

Management accounting practices

1) Planning systems

The company operates a formal budgeting system, which is prepared on an incremental basis. Occasionally the company uses the ZBB to prepare the master budget. The flexible budget was adopted in 1994 after the company realised that fixed budgeting, then in use, did not serve the desired control system.

Sales are forecast mainly using subjective methods based on staff experience. However the company at times conducts marketing research, using its own sales people, to supplement this information. Copies of such marketing reports were held in the department. Statistical regression methods are never used.

Until 1993 the PBP method was the company's preferred method for capital investment appraisal. However due to the dynamic economic environment that prevailed in the country after liberalisation, the company changed to NPV. However the PBP is still being used to evaluate small projects. As in the case of the other companies visited, managerial judgement plays a significant role in capital investment appraisal.

Strategic planning is the role of senior management although middle level managers are usually consulted. The company has a five-year strategic plan, which is usually revised every year for adjustments on any major changes in the company's operating environment.

2) Control system

The company uses both individual as well as team measurements to control its operations. The measures used have been changing over time. A notable change is the inclusion of non-financial measures, which were not in use ten years ago. Measures such as customer satisfaction, product quality, and delivery innovations are now widely used in the company.

To measure the overall performance of the organisation, the company utilises both financial as well as non-financial measures. The most common financial measures include accounting profit, turnover, ROI, and EVA (was introduced recently). The most common non-financial measures include market share, customer satisfaction, and staff turnover. The respondent advised that the company is in the process of introducing the cost of quality measure.

3) Costing systems

The company separates its costs into their fixed and variable components. Presently the company estimates that fixed costs average between 30-40% of the total costs. To allocate fixed costs to products, the company now uses the costs of activities performed as the main allocation base. This is at times supplemented with other traditional allocation bases such as direct labour.

For transfer pricing the total cost of producing the product plus a negotiated mark-up is used as the transfer price. The divisions involved with the transfer negotiate the mark-up.

4) Directing systems

The company uses both bonus and pay for performance plans to motivate its employees. However the manner in which these are used has been changing over time. For example, when bonuses were first introduced in 1994, they were based on a fixed amount but are now based on a percentage of the improvement in performance.

Other reward systems introduced during the last five years include: the best workers have their children college fees paid, sponsored trips abroad, and accelerated promotions.

5) Decision making

As in the case of the other four companies visited, decision making systems have undergone the most changes during the last decade when compared to the other management accounting systems. The main contributing factor was again the introduction of new and fast computers, which had greatly improved the processing of information. Accounting information is now reported more frequently and broadly, while the use of non-financial measures has been made possible.

Most of the company's operating decisions have now been delegated to the front office staff. This has been facilitated by the fact that front office staff now have access to online information relating to customers. According to the respondent, the move has greatly improved the company's image in the eyes of the customer.

The company has in place 20 out of the 27 management accounting systems that were included in the questionnaire. Sixteen of these systems have changed during the last decade.

6) Factors facilitating/hindering management accounting change

The respondent mentioned the following factors as being the main motivators of change in the organisation:

- Increase in competition after liberalisation of the South African economy.
- Change in technology

- New accountants
- Poor financial performance

The following factors were said to be the main factors that hindered change in the organisation:

- Inadequate computing facilities
- Management inertia
- Lack of skilled accountants

7.3.2 Case evidence and findings

Using the contingency and institutional theoretical frameworks (developed in chapter four), this section deals with cross case analysis of the data presented in the previous section. The evidence and findings here are presented by directly assessing how well the case evidence matches the pattern suggested by theory and the extent to which the findings are replicated over the cases.

1) Planning systems

All the companies visited operated a formal budgeting system. All of them also operate a flexible budgetary system. This type of budgeting fits well in a developing country where the economic environment is considered unstable. The economies of developing countries are relatively unstable when compared to those of developed countries. In a UK survey Drury *et al* (1993) reported that only 42% of the 300 companies surveyed operated a flexible budget. The remaining 58% operated a fixed budget. This may be attributed to the stable economic conditions prevailing in the UK economy.

Companies A, C and D prepare their budgets on an incremental basis, while company B uses ZBB. Company E uses incremental budgeting but at times adopts ZBB. The respondents advised that they were aware of the deficiencies of the incremental budgets but considered other types of budgets like ZBB more costly and time consuming. The popularity of incremental budgeting amongst SA firms may be attributed to the fact that this method is less costly and less time consuming as compared to ZBB.

companies visited used both financial as well as non-financial measures of performance. The research findings are consistent with those of Taylor *et al* (2001). It should however be pointed out that, unlike in developed countries where the use of non-financial measures have existed for a long time, this study reveals that most of the non-financial measures in developing countries are still in the early stages of introduction e.g. the cost of quality measures in Companies B and E.

3) Costing systems

Companies A, B and C used simple traditional cost allocation bases like turnover, square metres, and direct labour costs to allocate indirect costs to products. Although companies D and E indicated that they have since introduced ABC, the system was used mainly for profit analysis rather than for product costing. Even when it was used to cost products, it was usually supplemented with other traditional cost allocation bases such as direct labour. The respondents pointed out that the proportion of their indirect costs is still relatively low hence full adoption of ABC may not meet the cost/benefit consideration. These findings are consistent with the fact that labour is still abundant and relatively cheap in developing countries when compared to developed countries.

Transfer pricing in companies B, C and E was based on the cost plus method. The mark-up was determined by head office. In company E where transfer pricing was based on negotiation, management was in the process of replacing the system as it had been found to be time consuming and at times led to conflict among divisions.

4) Directing systems

All the companies visited used both bonuses and the pay for performance plans to motivate their employees. In three companies a staff loan scheme had recently been introduced to enable employees to buy the company's shares. Payment for college fees and sponsorship of trips abroad also featured prominently as newly introduced staff incentive schemes. In all the firms visited, accountants were working closely with other line managers in areas such as competitors' analysis and computation of

non-financial measures of performance. This had greatly improved the relationship between the accountants and other line managers.

5) Decision making systems

The introduction of fast computers in the last decade has contributed to the dramatic changes of the decision making systems experienced in all the five companies visited. Management accounting reports were being prepared more frequently since information was now readily available. Information was now being reported to more people as they could view it online on their computers. In the UK Innes and Mitchell (1990) reported that, the more timely, relevant and comprehensive new information was perceived as having improved managerial decisions in areas such as cost reduction, cost control, production locality, production quality and performance assessment. Companies A and C had already started using graphs, charts and trends to make management accounting information more understandable. The use of non-financial performance measures facilitated by the now readily available information was said to have resulted in better decisions. Companies A, B, D and E reported that the front office staff was now making most operating decisions. This had greatly enhanced customer service and hence there was an improvement of the companies' image, which could result in more business. According to Burns and Scapens (1999), this type of change (bottom up change) is more likely to have an impact at a tacit level and hence change the informal as well as the formal management accounting routines.

6) Factors facilitating/hindering management accounting change

The following were the factors that were most frequently mentioned by the respondents as being the motivators of change in their organisations:

- Increase in both local and global competition resulting from the liberalisation of the South African economy
- Changes in technology mainly due to the introduction of fast and efficient computers
- New markets and new shareholders who require different types of information
- Poor financial performance hence the need to overhaul the management accounting and control system

The following factors were mentioned as being the main hindrances to management accounting change:

- Lack of adequate computing facilities
- Management inertia
- Lack of skilled accountants
- Problems resulting from communications with senior management

Table 7.2 (on the following page) shows a summary of the main findings.

Table 7.2. Summary of the main findings

Finding	Company A	Company B	Company C	Company D	Company E
No. of MAS	20	24	14	18	20
No. of MAS that have changed	16	22	9	15	16
Predictors of MA change	Competition Technology New shareholders	Competition Technology New customer	Political Competition New customer	Competition Technology Poor financial performance	Competition Technology New accountants
Hindrances of MA change	Computing resource Accounting skills Mgt. inertia	Fear of change Financial constraint	Computing resources Mgt inertia. Accounting skills	Computing resources Mgt inertia	Computing resources Mgt inertia Accounting skills
Planning					
Budget systems	Flexible	Flexible	Flexible	Flexible	Flexible
Budget process	Incremental	ZBB	Incremental	Incremental	ZBB
Strategic plan	Yes	Yes	Not seen	Not seen	Yes
Capital invest. appraisal method	NPV Mgr judgement	NPV PBP	NPV Mgr judgement	NPV PBP	NPV PBP
Controls					
Non-financial measures	Quality Customer satisfaction	Quality Market share	Customer satisfaction Quality	Customer satisfaction Quality	Market share Customer satisfaction
Directing					
Individual performance measure	Team based	Team based	Individual based	Team based	Team based
Costing					
Cost allocation base	Simple	Simple	Simple	Simple	ABC plus simple
Decision making					
Reports	More frequently	More frequently	More frequently	More frequently	More frequently

The research findings indicate that most of the management accounting practices advocated in management accounting textbooks are present in the sampled organisations. On average 20 out of the 27 management accounting systems (listed in Appendix 5) were found to be present. Furthermore the study found that on average, the sampled organisation had implemented 16 management accounting changes during the last decade. When this is interpreted on the basis of the existing systems (twenty-seven), then on average 59% of the management accounting systems had changed during the last decade in South Africa.

Four of the five companies indicated that management accounting change resulted mainly due to the increase in competition after the liberalisation of the South African economy. The four companies have also introduced customer satisfaction as a performance measure. This suggests that changes in competition could have created that need for quality and timely information so as to meet the increasing demands of the customer. To provide this kind of information the management accounting systems had to be changed. We may therefore conclude that change in the management accounting system was mainly geared towards customer value creation.

The four companies also ranked changes in technology as the second most important factor that had facilitated management accounting change. These findings are consistent with the literature in chapter 4 (see section 4.3). We also note that all the respondents had changed their capital investment appraisal method from the pay back period to NPV. Although this change was mainly attributed to the dynamic operating environment, it may have been made possible by the introduction of computers, which had in turn made the processing of information faster and easier.

Despite the above argument, three of the five respondents indicated that lack of computing resources was the main factor hindering management accounting change followed by management inertia. This suggests that despite the technological changes computers are still not widely available in developing countries. This probably explains why most of the respondents continue to prefer the used of simple management accounting techniques. For example, three out of the five respondents

still use the incremental method to prepare their budgets. The respondents were aware of the deficiencies of the incremental method but indicated that it was less time consuming and less costly when compared to the other methods advocated in the literature.

All the five respondents operated a flexible budget system and mainly used discounted cash flow methods (NPV and IRR) to appraise capital projects. This was mainly attributed to the rapidly changing business environment. Most of these respondents previously operated static budgets and mainly used the pay back period to appraise capital investment projects.

Four of the five respondents used team rather than individual based performance measures. The respondents advised that most of their tasks were performed by groups making it difficult to attribute the results to an individual. The findings are consistent with the literature, which classify developing country's cultures as more collective when compared to those of developed countries.

The study also found a widespread use of simple cost allocation bases such as direct labour hours, square meters, no of employees and turnover. Only one of the companies visited used ABC to allocate indirect cost to products. These findings have the support of the literature (Jhingan, 1993; World Bank, 1998), which indicate that direct costs still constitute a high percentage of the total costs in developing countries

Table 7.3 shows the variables computed from the data collected from the responding companies in relation to the factors facilitating management accounting change (see interview questionnaire Appendix 5). These variables include: 1) competitive pressure faced by the respondent, 2) the level of decentralisation in the company, 3) the size of the company, 4) the degree of technological change, and 5) the company's organisational capacity to learn. The manner in which these variables were computed and what they represent has been described in section 7.4 (page 161).

Table 7.3: Summary of management accounting change variables

Firm	Competitive pressure scores	Decentralisation scores	Size scores	Technological change scores	Organisation capacity scores	Mgt accounting change scores
A	24.73	25	9.2	17	20	16
B	29.41	28	10.4	19	24	22
C	30.86	19	5.0	18	14	9
D	30.33	23	8.5	18	18	15
E	30.33	22	8.7	15	20	16
Mean						15.6
Theoretical range						0-27
Standard deviation						4.61

n=5

This study indicates that on average, the sampled organisations had implemented 16 (computed mean 15.6) changes in their management accounting systems during the last decade. If this change were to be interpreted on the basis of the existing 27 systems, then on average 59% of the management accounting systems changed during the last decade. Libby and Waterhouse reported a 31% change within a period of three years. The highest change in this study was in the decision making systems (34%).

The study provides evidence that refutes claims that management accounting has not changed or is generally resistant to change (Johnson and Kaplan, 1987; Drury *et al*, 1993). Evidence was also obtained to support the frequent change in systems that support decision making. The respondents felt that there has been a need to make more decisions at the point where the problems occur (operational level) unlike in the past where most decisions were made at top management level. For example company A felt that there is a need to make management accounting more understandable to all organisation participants. To achieve this the company had introduced graphs and charts to replace the accounting numbers. The respondent in company C expressed a similar view. This made accounting information more understandable, which is considered particularly important in developing countries where education standards are low. Further this would reduce instances of resistance to management accounting change (Scapens, 1994; Burns and Scapens, 1999, 2000).

7.4 Factors facilitating/hindering management accounting change

Taking a contingency theory of management accounting research perspective (see section 2.4.1), the following variables are identified as predictors of management accounting change: (1) competition, (2) decentralisation, (3) size, (4) technology, and (5) capacity to learn. The sections below explain how the contingent variables were arrived at in the study.

Table 7.4 below shows a summary of the descriptive statistics computed on the factors facilitating management accounting change (MAC) in the responding companies (see table 7.3).

Table 7.4. A summary of descriptive statistics of the determinates of MAC

Variable	Mean	Median	SD	Theoretical Range	Actual Range
Competition	29.1	30.3	2.5	7-35	24.7-30.8
Decentralisation	23.4	23.0	3.3	7-35	19-28
Size	8.3	8.7	1.9	-	-
Technology	17.4	18.0	1.5	4-20	15-24
Capacity to learn	19.2	20.0	3.6	0-27	14-24

7.4.1 Intensity of competition

Empirical evidence suggests a link between competition and management accounting change. This study conceptualises that changes in management accounting systems are expected to be high in firms operating in a more competitive environment. As the competition increases, so does the need to adopt systems that reduce costs, improve quality and reduce waste.

The perceived intensity of competition faced by the responding organisations was measured using a competitive pressure scale developed by Khandwalla (1977). This scale initially consisted of six questions (see interviewee questionnaire Appendix 5) rating the intensity of competition for raw materials, technical personnel, selling and distribution, quality, variety of products, and price on a scale from 1 (negligible) to 5 (extremely intense). As the study began, a further question on customer service was suggested by an interviewee and was added to the list. Each question related to the

intensity of competition had a corresponding scale for the importance of that type of competition to long term profitability and growth ranging from 1 (not important) to 5 (extremely important).

To compute the competitive pressure, the ratings for each type of competition were multiplied by their respective ratings on importance by intensity. The square root of the product was then obtained to arrive at the competitive pressure score (to make the distribution of the results more normal). The competitive scores of the variables were then aggregated to arrive at the competitive pressure facing the firm.

7.4.2 Degree of decentralisation

Management accounting literature finds support for decentralization as a predictor of management accounting change (Damanpour, 1991). To measure the degree of decentralization in the responding firms, this study relied on a method used by Libby and Waterhouse (1996). Respondents were asked to indicate the level of authority required to make certain operating decisions, starting with the production worker (scored as 5) to a person outside the department (scored as 1). A list of six operating decisions was initially included in the interview questionnaire (Appendix 5). As the study commenced, a seventh operating decision (inventory scheduling) was suggested by an interviewee and was added to the list.

The scores assigned to all operating policies in the organisation were then aggregated to arrive at the decentralization score. Organisations that obtained high scores were considered to be more decentralised than those with low scores, since this was an indication that more decision making authority was placed further down in the organisation hierarchy. The descriptive statistics results are shown in table 7.4.

7.4.3 The size of the organisation

For the purpose of this study size is defined as the number of employees working for an organisation. Libby and Waterhouse (1996), defined size in this manner. Although it may be argued that large systems are difficult to change, this study conceptualised

that larger organisations are more likely to change their management accounting practices as the operating environment changes since they have more resources.

Libby and Waterhouse (1996) and Damanpour (1991) measured organisational size as the natural logarithm of the number of employees in the organisation. Size was measured in this manner since it will result in the values being more normally distributed. The minimum number of employees in the responding organisations was 150 while the highest was 28,000.

7.4.4 Technological change

Management accounting literature has support for technological changes as predictors of management accounting change. To measure technological change in the responding organisations, respondents were asked to rate on a scale of 1 (irrelevant) to 5 (extremely important) how several technological changes had affected management accounting change. The sum of the scores assigned to each technological change was aggregated to arrive at the firm's technological change score. The descriptive statistics results are shown on table 7.4.

7.4.5 Organisational capacity to learn

Organisations that have invested in a large number of management accounting systems and personnel may respond to changes in or challenges arising from their environments by changing their management accounting systems. A high degree of organisational capacity to learn may facilitate change in management accounting systems because the expertise and personnel to educate managers about the benefits of change will be available. This study conceptualises that organisations with higher organisational capacity to learn will experience higher rates of management accounting change.

Libby and Waterhouse (1996) measured organisational capacity to learn as the number of management accounting systems present in the organisation at a particular point in time. This study measures organisational capacity to learn in a similar way. The descriptive statistics results are shown in table 7.4.

7.4.6 Analysis and results

As indicated elsewhere in this thesis, no evidence exists to show whether management accounting practices in developing countries have changed and if so whether the above variables have facilitated the change. This study set the following null hypothesis:

Management accounting change in organisations operating in developing countries is not associated with:

H1- a more intensely competitive environment

H2- a decentralised organisational structure

H3- larger size

H4- higher technological changes; and

H5- greater organisational capacity to learn

This study used correlation and regression analysis to test the relationship between management accounting change (the dependent variable) and the above independent variables. It is noted that a sample size of five companies is too small to develop a predictive model for management accounting change. Cohen and Cohen (1983:527) estimate that multiple regressions with three independent variables would require a sample size of 66 to achieve a statistical power of 0.8 at a 0.05 level of significance. However the aim here is not to develop such a model but to determine the relationship between management accounting change and the stated variables in the companies studied. Correlation analysis was initially used to test for significant association between management accounting change and the above variables. A scale of reliability coefficient of 0.87 was obtained. The correlation coefficient matrix results are presented in table 7.5.

Table 7.5 Correlation matrix

	var1	var2	var3	var4	var5	var6
var1	1.0000					
var2	-0.2504	1.0000				
var3	0.9475	-0.4590	1.0000			
var4	0.9415	-0.4272	0.9056	1.0000		
var5	0.1714	0.0712	0.3531	-0.0171	1.0000	
var6	0.9900	-0.3187	0.9334	0.9432	0.0726	1.0000

NB: Var1, 2, 3, 4, 5 and 6 represents; Management accounting change, Competition, Decentralisation, Size, Technology and Organisational capacity to learn respectively.

The results show a high correlation between management accounting change and decentralisation, size and organisational capacity to learn. Correlation between management accounting change and intensity of competition and technology was very low (-0.25 and 0.017 respectively). It is however interesting to note that the competition correlation coefficient is negative, suggesting a negative relationship between the variable and management accounting change. However this is not considered a problem since a positive r^2 value of 0.0627 was obtained when the variable was regressed against management accounting change. Robson (1994) argues that when correlation coefficients are below 0.31, it would be unlikely to be profitable to exert much further time and effort in investigating the relationship. Consequently the two variables (competition and technology) were dropped from multi linear regression analysis. Their possible affect on management accounting change was explored by regressing them individually against management accounting change. Dropping the two variables also increased the multi-regression analysis degrees of freedom from 0 to 2 hence making it sounder.

We set the following regression equation to test the above hypothesis:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e, \text{ where;}$$

Y= number of changes

X1= degree of decentralisation.

X2= size of the organisation

X3= organisational capacity

e is the error term, while b_1, b_2 and b_3 are the coefficients.

According to the regression analysis results, the variables entered in the regression model (decentralisation, size and organisational capacity) together explain 93% of the variations in the dependent variable (management accounting change). The results are shown in table 7.6:

Table 7.6 Regression results

Source	SS	df	MS			
Model	83.874697	3	27.9582323	Number of obs = 5		
Residual	1.325303	1	1.3253030	F(3, 1) = 21.10		
Total	85.20	4	21.30	Prob > F = 0.1084		
				R-squared = 0.9844		
				Adj R-squared = 0.9378		
				Root MSE = 1.1512		

var1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
var3	.24197	.4882823	0.496	0.707	-5.96224	6.44618
var4	.06932	.8906216	0.078	0.951	-11.24709	11.38575
var6	1.01276	.5769433	1.755	0.330	-6.31799	8.34352
cons	-10.08737	4.946928	-2.039	0.290	-72.94406	52.76931

Although multi-co-linearity was evident, this is not considered a serious problem in the model since r^2 is very high and at the same time significant at 0.1. Kaplan (1982) also points out that multi-co-linearity should not be considered a serious problem where the main aim is to measure the effect of all the independent variables on the dependent variable. In this case the issue is how variations in management accounting change can be explained by the independent variables rather than the accuracy of the individual coefficients. Change in management accounting was best predicted by organisational capacity to learn, followed by decentralisation and size respectively.

The regression analysis supports a strong positive relationship between organisational capacity to learn and management accounting change (Appendix 8). The coefficient of correlation is 0.99, which is very high. When management accounting change is regressed against organisational capacity to learn alone a very high coefficient of determination r^2 (0.97), which is significant at 0.05, is achieved. Organisations with greater numbers of management accounting systems are more likely to change their management accounting practices. These findings are consistent with theory, which states that more changes are expected where an organisation has the expertise and personnel to educate managers on the benefits of change (Argyris and Kaplan, 1994).

The regression results also support a strong positive relationship between decentralisation and changes in management accounting practices. When the

decentralisation variable was regressed against management accounting change, a coefficient of determination of 0.86 was achieved, which was significant at 0.05. Therefore more decentralised organisations are more likely to change their management accounting practices. This view was supported by the respondents in firms A, B, D and E who advised that since most of their decisions are now made at lower levels of management, their management accounting practices are continuously changing to make them more understood by those decision makers serving the customers.

The regression results also support a positive relationship between the size of the organisation and management accounting change. A coefficient of determination of 0.84, which is significant at 0.05 level of confidence was achieved. We therefore reject the null hypothesis and conclude that there is a significant relationship between the size of the organisation and management accounting change. The findings indicate that larger organisations are more likely to change their management accounting practices than small organisations. This may be due to the fact that large organisations have the resources to meet the costs of change, which are at times very high.

The regression analysis does not support any significant relationship between management accounting change and the intensity of competition. The intensity of competition only explains 6% variations in the changes in management accounting change and this is not significant at 0.05 confidence level. We therefore fail to reject the null hypothesis and conclude that there is no significant relationship between the intensity of competition and management accounting change. Libby and Waterhouse (1996) arrived at similar conclusions. It is however noted that when the interviewees were asked about the environmental factors that had facilitated management accounting change, increase in competition was the most frequently mentioned. Liberalisation of the South African economy in 1992/93 may have increased the intensity of international competition. Anderson and Lanen (1999) report that economic and political reforms are associated with increased price and product competition, made possible by unconstrained input markets and unfettered sales opportunities.

The explanations for the above inconsistency may be traced in management accounting literature, which cautions about the use of contingency theory in management accounting change research. Innes and Mitchell (1990) for example point out that it is not clear whether the so-called contingent variables affect management accounting directly or through the impact on the organisational structure.

The regression results show no significant relationship between management accounting change and technology. Technology only explained 3% of the variations in management accounting change and this was not significant at 0.05 level of confidence. Therefore we fail to reject the null hypothesis and concluded that there is no significant association between changes in technology and management accounting change. However when the interviewees were asked to state the factors that facilitated management accounting change, changes in technology was the second most frequently mentioned factor. Again the literature on contingency theory as explained above may offer some explanations for these inconsistencies.

Although developing countries are said to suffer from low levels of technology (Jhingan, 1993), there has been a significant technological change during the last decade. This is evidenced by the introduction of faster microcomputers and the wide spread use of the Internet which must have altered the way information is processed and used in developing countries.

7.4.7 Other factors facilitating management accounting change

Question 5 of the interview questionnaire requested the interviewees to rank the importance of the influence of specified organisational changes in management accounting change on a scale of 1 (irrelevant) to 5 (extremely important). The results are presented in table 7.7.

Table 7.7: Other factors influencing management accounting change

Factor	Irrelevant				Extremely Important	Rank
Retrenchment	1	0	0	3	1	4
New accountants	0	0	1	2	2	3
New packages	0	0	0	3	2	2
New products	1	0	2	1	1	5
Poor Financial performance	0	0	0	2	3	1

n=5

According to these results, poor financial performance was ranked highest with three out of the five respondents rating the factor as extremely important. New computer packages was ranked second while new products was ranked lowest. Only one respondent rated this factor as an extremely important determinant of management accounting change. Firms A, B, D and E added competition to the list and advised that this was considered extremely important. Firms C and E added new shareholders to the list but this was considered to be of average importance. Respondents in firms A, B, C and D added new markets to the list and ranked this variable as of above average importance.

The study therefore presents evidence that those firms reporting decreasing financial performance are more likely to change their management accounting practices. Firm D for example had restructured its businesses four years ago due to poor financial performance and this has resulted in a change in most of its management accounting systems.

Three out of the five interviewees ranked poor financial performance as an extremely important factor that had facilitated the changes in management accounting practices. Indeed the remaining two respondents classified this factor as of above average importance. New computer packages, an indication of technological change, was ranked extremely important by two respondents while the remaining three ranked it as above average importance.

In summary, companies faced with stiff competition and hence poor financial performance are more likely to change their management accounting practices in South Africa. This is probably done with the hope of increasing the control over the company's resources so as to reduce waste and hence improve performance.

7.4.8 Factors hindering management accounting change

Question 6 of the interview questionnaire asked the respondents to rank the influence of specified factors to the hindrance of management accounting change on a scale of 1 (irrelevant) to 5 (extremely important). The results are presented in table 7.8.

Table 7.8: Factors hindering management accounting change

Factor	Irrelevant				Extremely Important	Rank
Staff shortage	1	0	0	4	0	3
Inadequate computing resources	0	0	0	2	3	1
Management Inertia	0	1	1	1	2	2
Line mgt Communication	0	2	1	1	1	4
Lack of authority of accountant	0	1	3	1	0	5
Statutory Requirements	0	1	2	2	0	4
Lack of parent company autonomy	2	0	3	0	0	6

n=5

According to these results, lack of adequate computing resources was ranked highest, while lack of autonomy from parent company was ranked lowest. This suggests that lack of adequate computing facilities is the major factor hindering management accounting change in South Africa. Three out of the five respondents felt that the lack of computing resources was the most important factor that had hindered change in

their firms. The other two classified this factor as of above average importance. The interviewees felt that they required more and faster computer systems if they were expected to produce quality and timely management accounting information now required in view of the present highly competitive environment.

In summary, lack of adequate computing resources, management inertia and shortage of accounting staff are the most important factors hindering management accounting change in South Africa. This view is supported by the literature, which highlights the low levels of computer resources (Ming-Te, L and Farrell, C 1990) and lack of skilled manpower in developing countries.

7.5 Benefits of management accounting change

To measure the benefits of change, the respondents were asked to rate their satisfaction with their management accounting systems on a scale of 1 (extremely dissatisfied) to 5 (extremely satisfied) both before, and after the introduction of the modern management accounting systems. Where more scores were obtained after the adoption of a modern management accounting technique, the study concluded that the techniques had added value to the decision making process. Swenson (1995) used a similar approach to measure the benefits of activity cost based management to the manufacturing industry in the USA. In this study four modern management accounting practices (ABC, BSC, SMA and JIT) were examined.

Questions 7 and 8 of the interview questionnaire (Appendix 5) asked the managers to rate their satisfaction on: (1) the methodology of calculating product costs, (2) performance measurement system, and (3) the ability to provide information to direct cost information efforts, both before and after the introduction of ABC. Only two out of the five firms (C and E) responded to these questions. According to the results (table 7.9), a satisfaction score of eleven out of a maximum possible score of thirty was achieved before ABC implementation (37%), while a score of 27 out of a maximum possible score of thirty was reported after ABC implementation (90%). An increase in satisfaction of 53%, (which is significant at $\alpha=0.05$) was reported. These

results confirm that managers were more satisfied with the information generated by modern practices than that generated by the traditional practices.

Table 7.9: Summary of satisfaction scores

Practice	Scores before	Scores after	Maximum scores	% change in satisfaction	t-value	Significance level
ABC	11	27	30	53	-6.047	0.05
BSC	33	68	75	46.7	-6.614	0.05
SMA	50	82	100	32	-11.314	0.001
JIT	33	56	75	30.7	-4.6	0.05

Associated with each measure of change in satisfaction, the respondents were asked to rate the perceived improvements in certain specified qualitative characteristics of information (see section 2.3) after the introduction of the modern technique. This study views management accounting as an information system used by people within the organisation to generate and accumulate both financial and non-financial information for use in decision-making. This study conceptualises that any new management accounting practice that leads to the improvement in the characteristics of the information will increase the benefits received by the user of this information.

Questions 9,12, 15 and 18 requested the respondents to rate on a scale of 1 (extremely low) to 5 (extremely high) the perceived improvements in the characteristics of information after the introduction of ABC. The results are presented in Appendix 11 while a summary of the total score is shown in table 7.10:

Table 7.10: Total Satisfaction scores after implementation of modern practices

Factor	ABC	BSC	SMA	JIT	Rank
Accuracy	8	21	17	19	3
Accessibility	8	20	16	22	4
Reliability	10	23	18	22	2
Timeliness	10	24	22	24	1
Understandability	8	19	15	18	5
Total	44	107	88	105	

n=5

According to these results, all the qualitative characteristics of information were perceived to have improved after the implementation of the ABC, BSC philosophy, SMA and the JIT philosophy. Timeliness was ranked highest while understandability

score results (shown in table 7.9) indicate that satisfaction increased by 32% after the responding firms adopted SMA ($t=-11.313$; $\alpha=0.001$).

In summary, the responding firms received more benefits from SMA than from their previous system. The system therefore has improved the decision making process in the responding companies.

Questions 16 and 17 asked the respondents to rank their satisfaction with: (1) levels of inventory, (2) frequency of production defects and waste, and (3) quality and time of product delivery, before and after the introduction of JIT. A score of 33 out of a possible maximum score of 75 was achieved before the implementation of JIT. The score increased to 56 after JIT was implemented, hence an increase of 30.7%. We therefore conclude that the users of JIT in the responding organisations were more satisfied with the specified tasks than they were before JIT was introduced ($t=-4.6$; $\alpha=0.05$).

We may therefore conclude that the responding companies received more benefits after the introduction of JIT. JIT may therefore be said to have added value to their decision making process.

In summary, all the responding firms reported increased satisfaction after the implementation of the modern management accounting practices. The respondents also perceived the implementation of the new management accounting practices as having improved all the qualitative characteristics of information. Overall information was perceived to have become more timely and reliable. The findings suggest that the introduction of modern management accounting practices has added value to the decision making process.

7.6 Relevance of modern management accounting

This section presents the views expressed by the interviewees on the appropriateness of modern management accounting to their organisation. The section attempts to draw conclusions on the issues raised by the interviewees during the interview.

The three organisations that had not implemented ABC felt that their overhead costs were still relatively too low to warrant a change in the cost allocation base. Most of them used square metres and labour costs to allocate overheads. For example, company A advised that the overhead costs average 10-15%. Accordingly ABC implementation would not meet the cost benefit consideration. Asked to state the degree of satisfaction with the current costing system the interviewee put it at between 60 and 70%. The respondents in the other two companies expressed similar views.

Labour is still abundant in developing countries and labour costs are still relatively low. Most developing countries' governments encourage their companies to utilize labour intensive techniques so as to create employment. Direct labour is therefore expected to form a large proportion of the total manufacturing costs. With low levels of overheads, simple cost allocation methods may be more appropriate than ABC.

When asked about the appropriateness of the BSC, one manager responded:

"We have implemented what we think is appropriate to our business. We cannot implement everything that was suggested by the two gentlemen (referring to Kaplan and Norton) as some of these recommendations are inappropriate to our business".

As the interview progressed, it became evident that almost all the measures suggested in the BSC literature were being used in the organisation. However these had not been classified in the four categories suggested in the BSC literature. In firm B, the respondent rejected the research view that BSC was a modern management accounting technique. He stated:

" We have been using this technique for as long as I can remember. What the authors have now done is just to put the measures in writing".

The respondent argued that trying to categorise the performance measure in the manner suggested in the BSC literature would make the information less understood by lower level managers, which is against the company's present management accounting policy.

However central to the BSC is the causal link between the performance measures and the company's strategy. Kaplan and Atkinson (1998) caution that a company can have many performance measures (both financial and non-financial) that enable management to capture the necessary vital signs but these are not necessarily the basis for competitive breakthroughs. The link between the company's objective and the four or more perspectives of the BSC is what is likely to lead to success. The lack of understanding of this vital role of the BSC may be attributed to the problem of lack of skilled/trained manpower that is prevalent in developing countries (Jhingan, 1993).

All the respondents were satisfied with SMA. All of them stated that this practice enabled them to understand the firm's market, which they all associated with their success. As the research progressed, it became apparent that most of the accountants were now working closely with the marketing department. For example the accounting department was preparing some marketing reports but the sales people were supplying the information. Firm A, B, C and E used outside consultants to determine their market share, which was being done annually.

In regard to JIT most of the respondents used this practice for staff scheduling, on time delivery and to reduce waste. There was limited use of JIT in inventory management. It is to be noted that all the responding firms were from the retail sector. Their goods are fast moving making it difficult for them to implement the JIT purchasing suggested in the literature. Companies A, B, and E advised that the poor infrastructure in the country coupled with poor supply chain management, hindered the use of JIT for the purpose of managing inventory.

Question 8 of the interview guide asked the respondents whether there were any traditional management accounting techniques that were considered superior to the modern techniques from a cost/benefit consideration. There was almost consensus that the traditional cost allocation methods were considered superior to ABC. The complexity of ABC implementation was also mentioned as one of its pitfalls. All the respondents had relatively low levels of indirect costs and those who had

implemented ABC were only using it as a supplement to the traditional methods of cost allocation.

Question 9 asked the respondents whether there have been instances where management accounting information had been used for purposes other than decision-making. Most of the respondents cited opening of new branches as a typical example. According to them this has at times been done without any capital investment appraisal only for management accounting to be called in later to assess whether the project is viable. Two respondents also pointed out that some times in the past, products would be launched without their knowledge. They would only be called in later to determine whether such products were profitable or not. However this had not happened in the last few years probably due to the increase in competition.

Question 10 asked the respondents whether they intended to make any changes in their management accounting systems in the next two years. Although all five respondents predicted such changes, respondents in firms A and B cautioned that change was continuous. For example the respondent in firm B stated:

" We do not plan management accounting changes but make them as and when our business operations demand".

From an institutional framework perspective of management accounting change, these organisations do not experience a paradigm shift in management accounting but instead an evolutionary form of change. This type of change is easier to achieve than change, which challenges the existing routines and institutions (Burns and Saccens, 2000). Argyris and Kaplan (1994) argue that change may occur because of the need to build commitment. The evidence herein therefore points at evolutionary change rather than revolutionary change.

7.7 Summary and conclusions

This chapter reported the findings of five field visits made by the researcher during the month of September and October 2001. During the visits, discussions were held with the company finance managers on how their companies' management accounting

systems had changed during the last decade, the factors that facilitated/hindered this change and the perceived benefits of this change.

The study found that management accounting practices have changed significantly during the last decade. This change was perceived to have added value to the responding companies' decision making process. Management accounting change both in the manner in which management accounting practices are used and in the introduction of modern management accounting practices was motivated mainly by the changes that have occurred in the operating environment during the last decade. Changes in competition and technology are the main predictors of management accounting change. These changes are attributed to the process of globalisation, liberalisation and privatisation that has been taking place in South Africa during the last decade. Lack of adequate computing resources, management inertia and inadequate accounting skills are the main factors that hindered management accounting change.

In regard to the appropriateness of modern management accounting techniques in developing countries, almost all the respondents welcomed the use of SMA. All the companies interviewed had formal methods to monitor their market share, compiled competitor's costs analysis reports on a regular basis and had allocated substantial amounts of their funds to market research. All the firms reported that they contracted outside consultants to carry out market research on their behalf at least once annually. The high presence of SMA is mainly attributed to increased competitive pressures and the rapidly changing business environment, which has in turn made strategic issues more important.

All the companies interviewed had already implemented the use of JIT in some areas of their operations. Just-in-time delivery and just-in-time work scheduling were the two most frequently mentioned areas. However there was limited use of JIT in the management of inventory. This was made difficult by the country's poor infrastructure and the distance between the suppliers and the firms. The respondents also mentioned poor supply chain management within South Africa as another

limitation. Several respondents however mentioned that they were now using JIT to manage their cash holdings. Availability of telephone banking, widespread ATMs and the nearness of bank branches facilitated this cash management method.

In regard to the use of ABC, some interviewees felt that, although they produced many different products and faced high levels of competition, their overheads were still relatively low. ABC would therefore not meet the cost/benefit consideration. Those who had implemented ABC indicated that the system was only used for product costing and was only used for some specific products. Generally, there was lack of understanding of other uses of ABC such as in customer profitability analysis.

In regard to the BSC, widespread use of non-financial measures of performance was reported. However, the research found that some companies, which claimed to have implemented BSC, were only doing so as they had non-financial measures in place but these had not been grouped into the four or more categories and established causal links as suggested in the BSC literature. As much as these companies claimed to have benefited from the use of this performance measurement system, they had overlooked the fact that the use of non-financial measures alone may not be a basis for the competitive breakthroughs offered by the BSC philosophy.

More benefits are perceived to have been received where modern management accounting techniques have been introduced. The modern techniques are however used together with the traditional practices. Some respondents were found to have misunderstood the purpose behind the implementation of some modern practices like the BSC philosophy. This way they were unlikely to receive full benefits of such practices. The research findings will be discussed further in chapter 8.

CHAPTER EIGHT

SUMMARY, CONCLUSIONS AND IMPLICATIONS

"To my mind, the possible and future are one. I believe that all that is possible is trying to come into being; and all that can will be, if man helps".

*Andr'e Gide
The Fruits of the Earth.*

8.1 Introduction

This chapter starts by restating the research problem, the methods used in data collection and those used to analyse the data. The second section of this chapter reports the main findings of the study and the implications of these findings. The third section deals with the main conclusions while the fourth section suggests some areas for further research.

8.2 Summary of the study

This research proposed to investigate the management accounting practices and change in developing countries. It addressed the question of the impact of globalisation and privatisation on the management accounting practices in developing countries. The five main objectives of the study were:

- Determine the management accounting practices in South Africa.
- Determine whether these practices are appropriate for companies operating in a developing economy-South Africa.
- Determine if management accounting practices in South Africa have changed significantly during the last decade.
- Determine the factors that facilitated and/or hindered management accounting change in South Africa.
- Determine whether the changes in management accounting have added value to the decision making process in South Africa.

To achieve the above objectives, a multiple research design (survey and field-study) was used. In the first phase of the study, a questionnaire based on available literature

and discussions with both academicians and practitioners was used to collect data from a sample of 300 companies listed on the JSE. A follow up was later made by way of site visits to five companies that had earlier responded to the survey. The main aim of the second phase of the study was to gain an in-depth understanding of the issues raised in the questionnaire survey.

The data obtained was analysed using tables, cross tabulations, total scores, means and proportions. Chi-square, t-test and regression analysis were used to conduct pertinent statistical tests.

8.2.1. Management accounting practices in developing countries

The research findings on this objective indicate that most of the management accounting practices appearing in the literature are being used to some degree by companies operating in developing countries. The main findings are summarised in **Figure 8.1** and discussed on the following page:

Figure 8.1: Summary of the main findings



The section below explains the above-summarised findings together with other important findings of the study. These findings are compared with findings of studies in developed countries and differences explained where possible.

-There exists a high preference for flexible budgets by companies operating in developing countries unlike those in developed countries, which are reported to prefer fixed budgets. The field studies revealed that the flexible form of budget had become popular due to the rapidly changing business environment. Some of the respondents pointed out that fixed budgets were easier to use and had served the companies well prior to 1990. However, with the fall of apartheid in 1992, foreign companies were allowed to operate in South Africa and this increased the competition in the market. The companies' budgeting system needed to be altered to meet these new challenges and hence the flexible budget was introduced. These findings are inconsistent with those of developed countries where the fixed budget is the most widely used.

-There is a high preference for discounted cash flow methods in capital budgeting unlike developed countries, which have been reported to prefer non-discounted methods. Differences in the economic environment were seen as the main factor contributing to these differences. A high emphasis on management judgement was noted.

-No significant differences were noted between the use of management accounting practices and the age of the respondents. In regard to the use of management accounting practices and the respondent's industrial classification, a significant relationship existed only in the pricing method used. The research therefore submitted that different industries in developing countries used different pricing strategies. Significant differences were noted between the size of the respondents and the adoption e.g. ABC and BSC. This research confirmed that the larger the company, the more likely it was to implement modern management accounting techniques such as ABC and BSC.

-In the course of the field study it became clear that most of the South African companies are now relying on quality customer service in an attempt to gain a sustainable competitive advantage. To provide quality customer service, the companies require timely and accurate information. Management accounting systems provided this information. The emergence of non-financial measures of performance e.g. cost of quality and customer satisfaction was mainly necessitated by the need to offer high quality goods and services and has been facilitated by the introduction of fast computers.

-The findings indicate empowerment of frontline staff suggesting some degree of decentralisation. Although this may cause some problems due to the low levels of corporate governance experienced in developing countries, it increases the speed of decision making and thus improves customer service. More emphasis on teamwork leading to the preference of team-based measures was also evident. This is attributed to the fact that the cultures of developing countries are more collective when compared to those of developed countries. Collective cultures and the empowerment of frontline staff create an enabling environment for the introduction of Total Quality Management (TQM), a practice that had led to the success of most Japanese firms in the 1990's.

-There is evidence to suggest that management accountants are attempting to make management accounting more understandable. The introduction of figures, graphs, charts and trends was noted. Accountants are also working closely with other line managers in areas such as competitors analysis and market surveys. This is important in developing countries, which experience low levels of education and training.

8.2.2 Management accounting change

The research findings indicate that there has been significant change in the field of management accounting in South Africa. This change has been both in the introduction of new management accounting techniques and in the way management accounting is used. In the questionnaire survey, all the 52 responding companies indicated that there have been some changes in their management accounting systems.

Over 80% of these respondents indicated that the most significant changes had been made in the last five years. This finding, which was later confirmed during the field study, makes the sample time period ideal for the study.

The survey findings indicate that a number of South African companies have introduced the modern management accounting practices: ABB, ABC, BSC, JIT and SMA. The significant increase in the use of ABC since the survey by Horngren *et al* (1999) was notable. It was however pointed out that the poor supply chains in South Africa hindered the introduction of JIT. The presence of these new management accounting practices is a further indication that change has been taking place.

The field study viewed management accounting change from three perspectives:

- Management accounting practices.
- Changes made to the MAS in the last decade.
- Changes made in the use of management accounting information.

The study found that on average, the sampled organisations had implemented 16 changes in their management accounting systems during the last decade. When this is interpreted on the basis of the existing systems, then on average 59% of the management accounting systems have changed during the last decade in South Africa. Most of the systems that have changed are those that support decision-making. The recent emphasis on teamwork and decentralisation of companies may explain the high rate of change in decision making systems.

The study also reported that management accounting reports were now being prepared more frequently than before. This was necessitated by the need to make timely and faster decisions now demanded by the current highly competitive environment. The respondents also reported that management accounting is now widely dispersed around the organisation and managers now have direct, real-time access to accounting information, rather than relying on accountants to provide it. The use of graphs, charts and trends was seen as a positive step towards making management accounting

information available to all the members of the organisation. The respondents also saw this as a way of keeping management accounting information relatively simple.

The research findings indicate that various factors, both internal and external to the organisation, appear to have facilitated management accounting change in South Africa. First there was the fall of apartheid in the early 1990'S, which led to the globalisation and liberalisation of the South African market. This led to increased competition hence an increasing emphasis on the customer and the markets. Most of the respondents, both in the survey and in the field visits, cited increase in competition as a major factor that had contributed to management accounting change. It was however, interesting to note that when regression analysis was used to test the affect of competition on management accounting change, it only explained 6% of the variations in this change. Libby and Waterhouse (1996) had also found similar results. The explanations of this inconsistency were traced in the contingency theory of management accounting research. Literature points out that it is not clear whether the so-called contingency variables affect management accounting directly or through their impact on the organisational structure. This research submits that the contingency variables mentioned in the contingency theory of management accounting research only affect management accounting through their impact on the organisational structure.

This research found that there has been significant technological change, both in information systems and the methods of production. This was reported to have had a significant effect on the management accounting practices of South African firms. Changes in information technology have made it possible for firms to report more broadly and to more people. The information has become timelier and more accurate than it was ten years ago. However regression analysis results show that there is no significant relationship between management accounting change and changes in technology. Again explanations for this inconsistency can be found in the contingency theory of management accounting research.

The research found three main factors within the firm that facilitate management accounting change. Change was best predicted by organisational capacity to learn followed by decentralisation and size respectively.

The research obtained evidence for a strong positive relationship between organisational capacity to learn and management accounting change. Organisations that were more decentralised had instituted more changes in their management accounting system than those with lower levels of decentralisation. Organisations in developing countries that have invested in a large number of management accounting systems and personnel may respond better to changes in or challenges arising from their environment by changing their management accounting practices.

The research found evidence to support a strong positive relationship between decentralisation and management accounting change. This suggests that, as an organisation decentralises its activities, it also tends to change its management accounting practices. This view may be supported by our earlier findings that more management accounting changes have taken place in systems that support decision-making.

Evidence in support of a strong positive relationship between the size of the organisation and management accounting change was also obtained. Consequently large organisations are likely to make more changes in their management accounting systems than small organisations. The findings may be supported by the fact that large organisations have the resources to meet the cost of change.

Other factors that were found to have facilitated management accounting change include poor financial performance, new accountants, retrenchment and new products. From these findings, firms faced by financial distress are more likely to change their management accounting practices than those experiencing a stable financial position.

In regard to those factors that have hindered management accounting change, lack of adequate computing resources was considered the most important factor. Management

accounting is an information system, which requires efficient computers if the information generated is to meet the qualities of good information. Organisations faced with inadequate computing resources are unlikely to change their MAS. In developing countries lack of adequate computing resources has been identified as a major drawback (Ming-Te and Farrell, 1990).

Other factors identified as hindrances to change in developing countries included: management inertia, shortage of accounting staff, problems of communicating with line management, the need to ensure that statutory requirements are met and lack of autonomy from parent company. Developing countries generally suffer from low levels of education. It is therefore to be expected that there are fewer numbers of trained accountants in developing countries than in developed countries. This factor may have slowed down if not hindered management accounting change in South Africa.

Generally, there has been an improvement in the decision making process resulting from the changes in the management accounting systems. The research found that all the qualitative characteristics of information had improved after the introduction of modern management techniques. The respondents also reported increased satisfaction in their business operations after the introduction of modern management accounting techniques. Even where change was reported in the way accounting information was being used rather than with the introduction of modern techniques more benefits were still evident. For example, information was now being reported more broadly, making it available to and understood by lower level managers rather than the accountants. This had resulted in faster decisions as most of these could now be made in the areas where the problems occurred.

8.3 Conclusion

The main aim of this study was to investigate the impact of globalisation and privatisation on management accounting practices in South Africa. Since these macro economic factors apply almost similarly to all companies operating within South Africa the sample used is a good representation of other South African companies.

The study used the same set of data to answer different research questions. In this regard a theory triangulation approach was used. Theory triangulation is a powerful solution to the problem of relying on a single theory, which may undermine the validity and credibility of the findings. Patton (1987) however cautions that although theory triangulation is highly recommended, attempts at triangulation may mean a series of poorly implemented methods rather than one approach well executed. In this study the theoretical framework was developed from the literature (chapter four) before being used in the analysis to mitigate this limitation.

The main conclusions drawn from this study are:

-Most of management accounting practices advocated in the management accounting literature are being used. Managers are currently using modern management accounting techniques together with the traditional techniques to support decision making.

-There is a high emphasis on cost management amongst the responding firms. Management accounting is integral to line management. For example management accountants of the responding firms were working closely with other line managers in areas such as competitors' cost analysis and market surveys. The introduction of non-financial measures of performance such as cost of quality and customer satisfaction suggests a move towards customer value creation. The results suggests that management accounting in South Africa is currently in the third of the four stages of management accounting development suggested by IFAC. Evidence exists to show that the practices are slowly evolving into the fourth stage. For example value creation through quality customer service is now being emphasised.

-Companies in developing countries tend to lay more emphasis on team based performance measures than on individual performance measures. This practice is supported by the fact that cultures in developing countries tend to be more collective than those of developed countries that are said to be more individualistic (with the exception of Japan). Teamwork is viewed as a more efficient way of improving customer service.

-Change in management accounting was motivated by the liberalisation, privatisation and globalisation of the South African economy. The resultant rapid increase in both local as well as global competition, changes in technology (mainly information) and poor financial performance were the main macro environmental factors that had facilitated management accounting change. Within the firm, organisational capacity to learn, decentralization and size were seen to be the main factors that had facilitated management accounting change. We therefore concluded that large organisations are more likely to change their management accounting practices than small companies. Management accounting change in South Africa was noted to have occurred more through evolution than through revolution. Lack of adequate computing resources, management inertia, lack of accounting skills and problems of communications with line management were the main factors that hindered management accounting change. Lack of adequate computing resources may be attributed to the general poverty experienced in developing countries while lack of accounting skill may be attributed to the relatively lower levels of education in developing countries when compared to developed countries.

In summary, this research has provided evidence contrary to the claim that management accounting systems are generally resistant to change and supports the theory that environmental changes may either facilitate or hinder management accounting change. All the survey respondents indicated that they had made certain changes in their management accounting systems during the last decade. Furthermore the case studies revealed that changes in the management accounting systems had been prompted by the changes in the operating environment mainly the liberalisation of the South African market. Changes in management accounting systems are perceived to have added value to the decision making process in South Africa. These benefits would have been greater were it not for the fact that several new management accounting techniques were not well understood by the users and were therefore being only partially utilised. For example some respondents had assumed that they had implemented the BSC philosophy as they were now using non-financial measures of performance. However as is noted elsewhere in this thesis, use of many non-financial

measures of performance will only enable management to capture the necessary vital signals but these are not necessarily the basis for competitive breakthroughs.

This study may act as a reference for scholars and managers in developing countries to consider management accounting change in their countries. The study has demonstrated that the liberalisation and privatisation that has been taking place in South Africa call for a reform in management accounting practices. In this regard policy makers and practitioners may require to address the factors identified in this study as hindrances to management accounting change. If this is done management accounting practices will change with the changes in the operating environment, enabling South African companies to regain competitiveness in the market place.

In conclusion, the study has reported considerable changes to the management accounting practices in the subject organisations. The increase in competition and changes in technology have been identified as the two main environmental factors affecting management accounting change. The two factors do not, however, cause changes in management accounting directly, but are seen to affect the organisational structure, which in turn causes change in management accounting (Pettigrew and Whipp, 1991). Within the organisation, organisational capacity to learn was seen to be the main driving force in management accounting change (Argyris and Kaplan, 1994; Libby and Waterhouse, 1996). Thus, the change has been both through the introduction of new practices and in the way traditional management accounting practices are used. This evidence contradicts the charge made in the academic literature that management accounting is generally resistant to change.

The study's findings, however, must be interpreted with caution because the study has limitations. It is restricted to a survey done on 52 listed companies and a field study of a selected number of retail companies only. Therefore, generalising the results reported in this study to non listed companies should be done cautiously. Furthermore, this study is constrained to South Africa. Industries in other developing countries differ from their South African counterparts. This may be so because of legal and regulatory constraints and economic policies or structures that might differ among

countries. Thus, it might not be possible to generalise the findings in this study to others. So, future research may be designed to compare the findings in this study with findings that relate to industries in other countries. Confirmation of these findings is important since companies operating in developing countries may need to adopt them so as to regain competitiveness. Further, as the case study related to five organisations in the retail sector from a developing country – South Africa, future research adopting a large sample using a case study approach or surveys may shed further light on the research issues explored in this study.

8.4 Suggestions for further research

When looking at the benefits of management accounting change and the appropriateness of modern management accounting practices, this study relied mainly on the information provided by the finance managers of the responding companies. There was no prolonged direct observation of the firm's management accounting systems by the researcher. It was however evident that some management accounting practices that were said to exist in companies were actually absent. Detailed studies of individual modern management accounting practices are hereby recommended. The case study approach in the individual companies claiming to have implemented these techniques would be the most appropriate research method.

This study attempted to investigate the relationship between competitive forces and management accounting change. There is a need for a detailed investigation into the relationship between the firm's strategy, competitive forces and management accounting change in developing countries. A case study approach to this may be a more appropriate research strategy.

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Appendix 1. Classification of Economies (developing countries)

Income group	Africa		Asia and Europe		Americas
Low income	Angola Burundi Comoros Congo (DRC) Eritrea Ethiopia Kenya Lesotho Madagascar Malawi Mozambique Rwanda Somalia Sudan Tanzania Uganda Zambia Zimbabwe	Benin Burkina Faso Cameroon Central Africa Republic Chad Congo Cote d'Ivoire Gambia Ghana Guinea-Bissau Liberia Mali Mauritania Niger Nigeria Senegal Sierra Leon Togo	Cambodia Indonesia Korea Lao PDR Mongolia Myanmar Solomon Isl Vietnam Afghanistan Bangladesh Bhutan India Nepal Pakistan	Armenia Azerbaijan Georgia K'gyz Republ. Moldova Tajikistan Turkmenistan Ukraine Uzbekistan Yemen	Haiti Nicaragua
(Lower)	Namibia Swaziland Cape Verde Equatorial Guinea	Algeria Djibouti Egypt Morocco Tunisia	China Fiji Kiribati Marshall Isl. Micronesia Papua New Guinea Philippines Samoa Thailand Tonga Vanuatu Maldives Sri Lanka Syria West Bank And Gaza	Albania Belarus Bosnia Herzegovina Bulgaria Kazakhstan Latvia Lithuania Macedonia FYR Romania Russia Yugoslavia Turkey Iran Iraq Jordan	Belize Bolivia Colombia Costa Rica Cuba Dominica Ecuador El Salvador Guatemala Guyana Honduras Jamaica Paraguay Peru Vincent Suriname
Middle income	Botswana Mauritius Mayotte Seychelles South Africa	Gabon Libya Malta	American Samoa Korea Malaysia Palau Croatia Czech Rep. Estonia Hungary	Poland Slovak Rep. Isle of Man Bahrain Lebanon Oman Saudi Arabia	Antigua and Barbuda Argentina Barbados Brazil Chile Dominica Grenada Mexico Panama Puerto Rico St. Kitts and Nevis St. Lucia Trinidad and Tobago Uruguay Venezuela
(Upper)					

N=157; Source: World Development Report (2000:334)

Emerging Market Economies (Appendix 2)

Country	1997 GNP per Capita (US \$)	Country	1997 GNP per Capital (US \$)
Asia	-	Latin America	-
Bangladesh	360	Argentina	8,950
China	860	Brazil	4,790
India	370	Chile	4,820
Indonesia	1,110	Colombia	2,180
Korea	10,550	Ecuador	1,570
Malaysia	4,530	Jamaica	1,550
Pakistan	500	Mexico	3,700
Philippines	1,200	Peru	2,610
Sri Lanka	800	Trinidad	4,250
Taiwan	13,198	Venezuela	3,480
Thailand	2,740		
Europe	-	Middle East/Africa	-
Albania	708	Botswana	3,310
Armenia	435	Cote d'Ivoire	710
Azerbaijan	509	Egypt	1,200
Belarus	1,314	Ghana	390
Bosnia Herzegov	1,087	Israel	16,180
Bulgaria	1,170	Jordan	1,520
Croatia	4,060	Kenya	340
Czech	5,240	Mauritius	3,870
Estonia	3,360	Morocco	1,260
Georgia	968	Nigeria	280
Greece	11,640	Saudi Arabia	7,150
Hungary	4,510	South Africa	3,210
Kazakhstan	1,434	Tunisia	2,110
Latvia	366	Zimbabwe	720
Lithuania	2,430		
Macedonia	2,260		
Moldova	1,663		
Poland	504		
Portugal	3,590		
Romania	11,010		
Russia	1,410		
Slovakia	2,680		
Slovenia	9,840		
Tajikistan	179		
Turkey	3,330		
Turkmenistan	390		
Ukraine	1,040		
Uzbekistan	611		

QUESTIONNAIRE (Appendix 3)

A) GENERAL INFORMATION

1.1 Name of the Company (optional).....

1.2 What is the industry classification of your Company?

Banking and Financial services ()

Manufacturing ()

Mining ()

Insurance ()

Retailing ()

Investment ()

Construction ()

Property ()

Other please specify.....

1.3 Is your Company's Head Office

Local ()

International ()

If international please specify the country.....

The following questions relate to your local operations only.

1.4 For about how long have you been in operation?

Less than 5 years ()

5 to 10 years ()

10 to 20 years ()

Over 20 years ()

1.5 About how many employees are there in your organization?

Less than 250 ()

250 to 1000 ()

1000 to 5000 ()

More than 5000 ()

1.6 The company's annual turn over is

- Less than R100m ()
- R100m to R500m ()
- R500m to R1 billion ()
- Above R1 billion ()

1.7 Does your company operate a multi-product/service line? Yes No

1.8 If yes how many products and/or services?

1.9 Who are your main competitors?

- New entrants ()
- Existing big players ()
- Existing small players ()
- Substitute products ()
- Second-hand products ()

Other please specify

.....

1.10 Rate the importance of your major threats.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Competition (Global)	()	()	()	()	()
Competition (Local)	()	()	()	()	()
Lack of raw materials	()	()	()	()	()
Lack of Capital	()	()	()	()	()
Lack of skilled manpower	()	()	()	()	()
Changes in technology	()	()	()	()	()
Poor infrastructure	()	()	()	()	()
Other please specify	()	()	()	()	()

B) MANAGEMENT ACCOUNTING PRACTICES.

2. The budgeting process

2.1 Describe your company's budgeting process.

- a) The master budget is prepared to run for one year ()
- b) The master budget is prepared for twelve months but revised every quarter/month and adjusted for any anticipated changes ()
- c) Other please specify

2.2 To prepare your master budget you:

- a) Take the previous year budget as a base and increase/decrease the revenue and /or costs ()
- b) Start from zero and justify all activities independently ()
- c) Look at the different activities performed in the organisation and then estimate cost/revenue for each activity ()
- d) Other Please specify.....

2.3 To what extent are the following techniques used in forecasting budgeted sales revenue/turnover?

	Never	Rarely	Sometimes	Often	Always
a) Statistical forecasting	()	()	()	()	()
b) Market research	()	()	()	()	()
c) Subjective estimates based on staff experience	()	()	()	()	()

2.4 Activity Based Budgeting (ABB) has recently been suggested as an alternative approach to budgeting. Please indicate which of the following statements is most applicable to your organisation.

- a) ABB has been introduced ()
- b) It is intended to introduce ABB ()
- c) Some consideration is being given to introduce ABB ()

- d) A decision has not been taken to introduce ABB ()
- e) Discussions have not taken place regarding introduction of ABB ()

2.5 Kindly rate the influence of the following in determining the final budget authorisation for a particular department/budget centre.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Supervisor	()	()	()	()	()
Departmental manager	()	()	()	()	()
Budget staff/accounts	()	()	()	()	()
Senior management	()	()	()	()	()

2.6 Kindly rate the importance of budgeting in each of the following as applicable to your company.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Allocation of resources	()	()	()	()	()
Communication	()	()	()	()	()
Control	()	()	()	()	()
Performance evaluation	()	()	()	()	()
Planning	()	()	()	()	()
Coordination	()	()	()	()	()
Motivation	()	()	()	()	()

3 Product cost measurement

3.1 Does your organisation separate costs into fixed and variable? Yes.... No

3.2 Which of the following best describes the approach your company uses for separating fixed and variable costs?

- a) Statistical regression techniques
- b) Classification on a subjective basis based on managerial experience
- c) All overheads are classified as fixed costs while direct costs are classified as variable costs
- d) All overheads and labour costs are classified as fixed costs while material costs are classified as variable costs.
- e) Other please Specify.....
.....

3.3 What is the company's indirect cost as a percentage of the total operational costs?
..... %

3.4 Please indicate the extent to which the following costs are used for decision making purposes, e.g.(product costing, investments, make or buy decisions).

	Never	Rarely	Sometimes	Often	Always
Variable/ incremental costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fixed/ overhead costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other please specify					

3.5 Activity based costing (ABC) has recently been suggested as an alternative approach for tracing overheads to products. Please indicate which of the following statements is most applicable to your organisation.

- a) Discussions have not taken place regarding the introduction of ABC.
- b) A decision has been taken not to introduce ABC
- c) Some consideration has been made to the introduction of ABC
- d) It is intended to introduce ABC
- e) ABC has been introduced

3.6 If ABC has been introduced, please indicate the number of cost drivers currently used to trace overheads to products/services.

1-5..... 6-10..... 11-20..... Over 20.....

3.7. Please describe your costing systems.

- a) We allocate all costs of the organisation to the product/service ()
- b) We assign only those costs that are directly related to the product ()
- c) We allocate those costs directly related to the product and a proportion of the period/overhead costs to the product ()
- d) Other Please specify.....

3.8 If your answer to question No. 3.7 is (c), which of the following methods do you use to allocate overhead costs to the costs of the individual products?

- a) The number of machine/labour hours used. ()
- b) The cost of the activities performed to complete the product. ()
- c) Cost of labour ()
- d) Cost of materials ()
- e) Units of output ()
- f) Other please specify.....

4 Inventory management

4.1 To manage our inventory. (You may tick more than one)

- a) We maintain a minimum stock level. ()
- b) We have established how much to order when the stocks get to that level. ()
- c) We do not maintain any stocks and only order when products are required. ()
- d) We have classified our stock into various categories (e.g. A, B, C) and make orders depending on the categories. ()
- e) We have used past experience to determine how much to order. ()
- f) We have used probability theory to determine how much to order. ()

4.2 Just In Time (JIT) has been suggested as an alternative approach to the management of inventory. Please indicate which of the following statements is most applicable to your organisation.

- a) Discussions have not taken place regarding the introduction of JIT ()
- b) A decision has been taken not to introduce JIT ()
- c) Some consideration is being given to introduce JIT ()
- d) It is intended to introduce JIT ()
- e) JIT has been introduced ()

4.3 If JIT has been introduced which of the following statements is most applicable to your organisation.

- a) JIT is used to manage all types of inventory ()
- b) JIT is used to manage most of our inventory ()
- c) JIT is used to manage just a few of our inventory ()

4.4. Rate the importance of the objectives of your inventory management systems:

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Minimize holding costs	()	()	()	()	()
Minimize ordering costs	()	()	()	()	()
Meet customer demand	()	()	()	()	()
Government regulations	()	()	()	()	()
Avoid Shortages	()	()	()	()	()
Reduce transport costs	()	()	()	()	()
Speculation	()	()	()	()	()
Other please specify	()	()	()	()	()

5.Pricing decisions

5.1.Which of the methods described below suits best the way your company prices its products? (You may tick more than one)

- a) We estimate the unit cost of the product and then add a percentage mark up to this cost to provide for reasonable profit. ()
- b) We estimate the costs that are relevant (direct) to the production of one unit of the product and add a mark up. ()
- d) We establish the amount of money the target customer is willing to pay for the product prior to designing/introducing the product. ()
- e) Market prices of competitors ()
- e) Other please specify

.....
.....

5.2 To what extents are product/ service costs compared with the market determined selling prices for major products?

Never..... Rarely..... Sometimes..... Often..... Always.....

5.3 Where depreciation is used in product costing, please indicate which bases is used to compute the depreciation cost

- Historical cost ()
- Current replacement ()
- Other costs ()

5.4 To what extent is target costing used, i.e., a target-selling price and a target profit margin are set and efforts are made to attain the target cost by generating alternative acceptable product designs.

Never.....Rarely.....Sometimes..... OftenAlways

5.5. Rate the importance of your pricing policy objectives.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Maximize sales	()	()	()	()	()
Maximize profits	()	()	()	()	()
Increase market share	()	()	()	()	()
Offer lowest market price	()	()	()	()	()
Serve a given market segment	()	()	()	()	()
Market penetration	()	()	()	()	()
Other please specify	()	()	()	()	()

6 Transfer pricing

6.1 Do your divisions sell products/services to other divisions?

Yes No

6.2. If yes, which of the following is your company's policy on transfer pricing?

- a) Use of prices prevailing in the market. ()
- b) Use the total cost of producing the unit plus a given percentage of profits. ()
- c) Use of the market price to negotiate the transfer price . ()
- d) Use the marginal cost/direct cost of producing the unit. ()
- e) Other please specify.

.....

6.3 Are divisions allowed to buy from outside the group goods/services that can normally be obtained from within the group? Yes..... No

6.4 If the buying division is permitted to buy from outside the group, please indicate whether or not the decision normally has to be approved by the head office.

Yes..... No

6.5 Are divisions allowed to sell outside the group, goods/services that can normally be sold within the group? Yes..... No

6.6 If the selling division is permitted to sell outside the group, please indicate whether or not the decision normally has to be approved by the head office.
Yes..... No

7 Capital investment appraisal

7.1 Does your company appraise capital investment projects?

Yes..... No.....

7.2. Rate the importance of the methods used by your company to appraise capital investment projects.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Accounting rate of return	()	()	()	()	()
Pay back period	()	()	()	()	()
Net present value	()	()	()	()	()
Internal rate of return	()	()	()	()	()
Other please specify	()	()	()	()	()

7.3 Where your organisation uses discounting methods to appraise capital projects, please indicate which of the following best describes how inflation is dealt with in the appraisal.

- a) Current cash flows are adjusted by the anticipated rate of inflation ()
- b) Cash flows are expressed in current prices (without any adjustment for inflation) ()
- c) Cash flows are adjusted by specific rates of inflation and then deflated by the general rate of inflation and thus expressed in real terms. ()

Others please specify.....

.....

7.4 Which of the following discount rates are used to discount cash flows?

- a) An observed/assumed discount rate less an estimated inflation rate. ()
- b) An observed/assumed discount rate without any deduction of the anticipated inflation rate. ()

Other please specify

.....

8 Divisional performance measurement

8.1 Which of the following bases are used to split your organisation into divisions?

- a) The nature of the product /service ()
- b) The geographical area ()
- c) The nature of the market served ()
- d) The function ()

Other please specify.....

8.2. Does your organisation measure the performance of its divisions?

Yes No

8.3. If the answer to question No.8.2 is yes, rate the importance of the following measures of performance of your divisions.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Return on assets	()	()	()	()	()
Economic value added	()	()	()	()	()
Accounting profits after overheads	()	()	()	()	()
Contribution margin	()	()	()	()	()
Sales volume	()	()	()	()	()
Other please specify	()	()	()	()	()

9 Managerial performance measurement

9.1. Does your organisation measure the performance of its managers?

Yes No

9.2. If the answer to question No.9.1 is yes, rate the importance of the following measures of performance of your divisional managers.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Return on assets	()	()	()	()	()
Economic value added	()	()	()	()	()
Accounting profits after overheads	()	()	()	()	()
Contribution margin	()	()	()	()	()
Sales volume	()	()	()	()	()
Ability to stay within budget	()	()	()	()	()
Other please specify	()	()	()	()	()

9.3 The balanced score card (BSC) has recently been advocated as an approach to performance measurement. Please indicate which of the following statements is most applicable to your organisation.

- a) Discussions have not taken place regarding the introduction of BSC ()
- b) A decision has been taken not to introduce the BSC ()
- c) Some consideration is being given to introduce the BSC ()
- d) It is intended to introduce the BSC ()
- e) The BSC has been introduced ()

9.4 If you have introduced the BSC, rate the importance of the following performance measures.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Financial	()	()	()	()	()
Customer	()	()	()	()	()
Internal business	()	()	()	()	()
Learning and growth	()	()	()	()	()
Other please specify	()	()	()	()	()

9.5. Rate the importance of the purpose of performance evaluation.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Rewarding managers	()	()	()	()	()
Evaluating managers	()	()	()	()	()
Control	()	()	()	()	()
Planning	()	()	()	()	()
Motivation	()	()	()	()	()
Training/learning	()	()	()	()	()
Other please specify	()	()	()	()	()

10. Standard costing

10.1 Does your company currently operate a standard costing system?

Yes.....No.....

10.2 Has your company operated a standard costing system during the last ten years?

Yes..... No.....

10.3. How frequently are standard costs normally reviewed?

Continuously..... Monthly.....Quarterly..... Semi- annually... Annually.....

Other please specify.....

10.4. Are variances investigated in your organization? Yes.... No.....

10.5. If your answer to Question No 10.4 is yes rate the importance of the purpose of variance investigation.

	Extremely Important	Above Average Importance	Average Importance	Not important	Irrelevant
Control	()	()	()	()	()
Evaluate managers	()	()	()	()	()
Preparation of budgets	()	()	()	()	()
Set standards	()	()	()	()	()
Other please specify	()	()	()	()	()

11. Other aspects of management accounting

11.1 Describe the source of your management accounting information.

- Internal ()
- External ()
- Both internal and external ()

11.2. Are profits analysed in your organization?

Yes No

11.3. Describe the manner in which profits are analysed in your organization.

- a) By customer ()
- b) By product ()
- c) By department/unit ()
- d) Other please specify.....

11.4. Kindly tick the three most important key drivers in generating profits

- | | |
|-----------------------------|--------------------------------|
| a) Cost management () | b) Customer classification () |
| c) Asset utilisation () | d) Quality control () |
| e) Credit control () | f) Production control () |
| g) Product planning () | h) Distribution () |
| i) Investment decisions () | j) Other |

11.5 To what extent does your organisation analyse its product costs and cost structures in order to understand the business operations in greater depth?

Never..... Rarely..... Sometimes..... Often..... Always.....

11.6 To what extent does your organisation estimate the product costs and cost structures of competitors' products in order to compare them with those of its own?

Never..... Rarely..... Sometimes..... Often..... Always.....

11.7. Please indicate the emphasis placed by your organisation on the following strategic priorities over the last 10 years.

Strategic priorities	No emphasis					Great emphasis
	1	2	3	4	5	
Provide high quality products	()	()	()	()	()	()
Low production costs	()	()	()	()	()	()
Provide unique product features	()	()	()	()	()	()
Lower prices than competitors	()	()	()	()	()	()
Customized products (flexible)	()	()	()	()	()	()
Serve only a given mkt segment	()	()	()	()	()	()

11.8. Please indicate the extent to which the competitive environment faced by the major products/ services of your organisation has changed during the last decade.

Significant Decrease ()	Slight decrease ()	No Change ()	Slight Increase ()	Significant Increase ()
--------------------------------	---------------------------	------------------	---------------------------	--------------------------------

11.9. Please indicate the extent of information sharing between your company and the other members of the value chain (suppliers and customers).

Never..... Rarely..... Sometimes..... Often..... Always.....

11.10. Please indicate the extent to which the competitive environment has affected your organisation cost/management accounting system

No effect	Not Significant	Average Significance	Above average Significance	Very Significant
()	()	()	()	()

Please comment.....

.....
.....

11.11. Please indicate when the last significant changes were made in your cost/management accounting systems.

Within last two years	2 – 5 years ago	6 – 10 years ago	Over 10 years ago
()	()	()	()

Please describe briefly any significant changes, which have been made within the last 10 years.

.....
.....

11.12. Why were the changes made?

.....
.....
.....
.....

11.13. Kindly list some of the benefits that have been achieved as a result of the above changes.....

.....
.....

11.14 Is your company planning to make any changes to the cost/management accounting system in the next 2 years? Yes..... No.....

If yes briefly describe the nature of the changes.....

.....
.....
.....

11.15. What are the most significant cost/ management accounting problems, which you feel your company needs to address?

.....
.....
.....

11.16. Please list below the most important benefits accruing to your organization as a result of using modern management accounting techniques such as ABC, BSC, SMA, JIT, Target costing, in terms of product costing/pricing, inventory management, investment appraisal, etc.

.....
.....

THANK YOU FOR YOUR COOPERATION.

University of Cape Town

INTERVIEW GUIDE (Appendix 4)

Introduction

- 1) General introduction
- 2) Technical introduction

The study focuses on management accounting in developing countries. In particular questions will probe;

- Modern management accounting practices used
- Appropriateness of these techniques
- Benefits of these techniques
- Changes that have occurred during the last decade
- Factors that facilitate/hinder change.

As explained in my letter, confidentiality is assured to all participants. No data will be associated with any individual or organization. Ultimately, my research interest is in underlying patterns across different organizations and not in particular cases.

Background

Please describe the size and structure of the organization.

Size; no of employees-----

Turnover-----

Structure; Does the organization have an organization chart? What about a departmental chart?

If Yes, May I view a copy of the charts?

Which of the following systems are present in your organization? (Refer question 1 in the structured questionnaire).

PART ONE; MANAGEMENT ACCOUNTING CHANGE

Q1). Which systems have been changed during the last 10 years?

Probe for: 1) Nature of change

2) Reasons for the change

Q 1.1). Which environmental factors have facilitated these changes?

Probe for details like the most important and how they have affected.

The following questions ask you to indicate the extent/importance of the above variables with respect to management accounting change (refer to structured questionnaire Qs. 2,3,4 and 5).

Q 2) What factors have hindered management accounting change in your organisation?

Probe for details in terms of extent and importance of the factors. (Refer Q.6 of structured questionnaire).

PART TWO: BENEFITS OF CHANGE

Q 3) Has ABC been introduced in the organisation?

If no, probe for: (1) Are there any plans to introduce ABC?

(2) What costing systems are in use?

(3) Degree of satisfaction in the current systems.

If yes probe for: (1) When it was introduced?

(2) Why it was introduced?

(3) How it is used?

(4) Number of cost drivers.

Go to structured questionnaire for satisfaction/perceived benefits.

Q 3.1) Do you think your company would require another system to replace ABC?

If yes probe for: details of the required system.

Q 4). Has BSC been introduced in the organisation?

If no, probe for: (1) are there any plans to introduce BSC?

(2) What performance systems are in use?

(3) Degree of satisfaction in the current systems.

If yes probe for: (1) when it was introduced?

(2) Why it was introduced?

(3) How it is used?

(4) Number of performance measures.

Go to structured questionnaire for satisfaction/perceived benefits.

Q 4.1) Do you think your company would require another system to replace BSC?

If yes probe for: details of the required system.

Q 5) The presence/absence of SMA will be determined by the presence/absence of the following:

- Reports on competitors information
- Relationship between management accounting and the firms' strategic positioning.
- Value determination in the firm.
- Reports on the firm's product/ service market.

Questions.

1) Does the organization obtain information about competitors?

If yes, Probe for: a) Types of information

b) Types of reports

c) Frequency of the reports

2) How does the firm position its products/services in the market?

Is it by: a) Offering lower costs

b) Differentiating its products

or c) Niche/Focusing on a particular market segment.

3) How does your organization assess the value of its activities?

Is it by: a) The difference between the sales and purchases
Or b) the above but including the benefits/opportunities of linkages with
supplier and customer?

If (b) Probe for details.

4) Does your organization determine the market share of its products/services?

If yes, Probe for: a) How it is determined
b) How often it is done
c) Types of reports produced

Go to structured questionnaire for satisfaction/perceived benefits.

Q 5.1) Do you think your company would require another system to replace any of the above systems?

If yes probe for: details of the required system.

Q 6). Has JIT been introduced in the organization?

If no, probe for: (1) are there any plans to introduce JIT?
(2) Degree of satisfaction in the current systems.

If yes, probe for (1) when it was introduced?
(2) why it was introduced?
(3) how it is used?
(4) number of JIT systems.

Go to structured questionnaire for satisfaction/perceived benefits.

Q 6.1) Do you think your company would require another system to replace JIT?

If yes, probe for: details of the required system.

Q7). In your opinion, what are the most important benefits that have accrued to your organization as a result of adopting modern management accounting techniques?

Q8). From a cost/benefit consideration, are there any traditional management accounting techniques that you consider superior to the advance management accounting techniques?

Q9). Are there situations where management accounting systems information has been used for other purposes rather than decision-making?

Q10). Do you intend to make any changes in your management accounting systems in the next two years? If yes, probe for details.

Interview Questionnaire (Appendix 5)

PART ONE: Factors facilitating management accounting change

Q.1 Which of the following management accounting systems are applicable to your organization?

Planning systems

- 1 Budgeting
- 2 Profit Planning
- 3 Production Planning
- 4 Capital Budgeting
- 5 Strategic Planning
- 6 Other Planning Systems

Control Systems

- 7 Individual Performance Measurements
- 8 Team based performance measurements
- 9 Organization Performance Measurements
- 10 Measurement of performance in terms of quality
- 11 Measurement of performance in terms of customer satisfaction
- 12 Measurement of performance in terms of delivery innovations
- 13 Other performance measures

Costing Systems

- 14 Direct allocation of manufacturing overheads
- 15 Direct allocation of marketing costs
- 16 Direct allocations of other overheads
- 17 Internal (dept. or divisional) transfers
- 18 Other costing systems

Directing Systems

- 19 Reward systems- bonuses
- 20 Reward systems- pay for performance plans
- 21 Other reward systems

Decision Making

- 22 Information reported more frequently
- 23 Use for more non-financial measures
- 24 Information reported more broadly
- 25 Use of existing systems but interpreting the results differently
- 26 Other changes to reporting systems
- 27 other changes to systems that do not appear in the list.

Q 2 Please indicate the perceived intensity of competition faced by your organization in respect to the following variables.

Competition	Negligible				Extremely Intense
	1	2	3	4	5
Raw materials	()	()	()	()	()
Technical personnel	()	()	()	()	()
Selling and distribution	()	()	()	()	()
Quality	()	()	()	()	()
Variety of products	()	()	()	()	()
Price	()	()	()	()	()
Other please specify	()	()	()	()	()

Q 2.1 Rank in order of importance the types of competition to long term profitability and growth

Competition	Not important				Extremely important
	1	2	3	4	5
Raw materials	()	()	()	()	()
Technical personnel	()	()	()	()	()
Selling and distribution	()	()	()	()	()
Quality	()	()	()	()	()
Variety of products	()	()	()	()	()
Price	()	()	()	()	()
Other please specify	()	()	()	()	()

Q 3 As regards decentralization, which level of authority is required to make the following operating decisions?

	Officer				Production
	Outside dept				worker
	1	2	3	4	5
Product design	()	()	()	()	()
Process renovation	()	()	()	()	()
How much to produce	()	()	()	()	()
Inventory levels	()	()	()	()	()
Leave schedule	()	()	()	()	()
Training	()	()	()	()	()
Other please specify	()	()	()	()	()

Q 4 Rank in order of importance how the following technological changes have affected management accounting change .

Competition	Not				Extremely
	important				important
	1	2	3	4	5
Automation	()	()	()	()	()
Short production cycle	()	()	()	()	()
Increase in overheads	()	()	()	()	()
Quality requirements	()	()	()	()	()
Other please specify	()	()	()	()	()

Q 5 Rank in order of importance how the following organizational changes may have influenced changes in management accounting.

	Irrelevant				Extremely important
	1	2	3	4	5
Retrenchment	()	()	()	()	()
New accountants	()	()	()	()	()
New packages	()	()	()	()	()
New products	()	()	()	()	()
Poor financial performance	()	()	()	()	()
Other please specify	()	()	()	()	()

Q 6 Rank in order of importance the influence of the following factors in relation to hindrance of management accounting change

	Irrelevant				Extremely important
	1	2	3	4	5
Accounting staff shortage	()	()	()	()	()
Lack of adequate computing resources	()	()	()	()	()
Management inertia	()	()	()	()	()
Poor communication with line mgt	()	()	()	()	()
Lack of authority of accountant	()	()	()	()	()
Need to meet statutory requirements	()	()	()	()	()
Lack of autonomy from parent Co.	()	()	()	()	()
Other please specify	()	()	()	()	()

PART TWO: Benefits of change

Q 7 Before ABC, how satisfied were you with your business unit's;

	Extremely dissatisfied				Extremely Satisfied
	1	2	3	4	5
a) Methodology for calculating product costs	()	()	()	()	()
b) Performance measurement systems	()	()	()	()	()

- c) Ability to provide information to direct cost reduction efforts () () () () ()

Q 8 After ABC, how satisfied are you with your business unit's;

- | | Extremely dissatisfied | | | | Extremely satisfied |
|--|------------------------|-----|-----|-----|---------------------|
| | 1 | 2 | 3 | 4 | 5 |
| a) Methodology for calculating product costs | () | () | () | () | () |
| b) Performance measurement systems | () | () | () | () | () |
| c) Ability to provide information to direct cost reduction efforts | () | () | () | () | () |

Q 9 Rank in order of importance the perceived improvements in each of the following characteristics of information.

- | | Extremely low | | | Extremely High | |
|-------------------|---------------|-----|-----|----------------|-----|
| | 1 | 2 | 3 | 4 | 5 |
| Accuracy | () | () | () | () | () |
| Accessibility | () | () | () | () | () |
| Reliability | () | () | () | () | () |
| Timeliness | () | () | () | () | () |
| Understandability | () | () | () | () | () |

Q 10 Before the implementation of BSC, how satisfied were you with your business unit's;

- | | Extremely Dissatisfied | | | | Extremely satisfied |
|---|------------------------|-----|-----|-----|---------------------|
| | 1 | 2 | 3 | 4 | 5 |
| a) Performance measurement system | () | () | () | () | () |
| b) Ability to identify factors that contribute to long term profitability | () | () | () | () | () |
| c) Ability to communicate business goals to employees. | () | () | () | () | () |

Q 11 After the implementation of BSC, how satisfied are you with your business unit's;

	Extremely dissatisfied				Extremely satisfied
	1	2	3	4	5
a) Performance measurement system	()	()	()	()	()
b) Ability to identify factors that contribute to long term profitability	()	()	()	()	()
c) Ability to communicate business goals to employees	()	()	()	()	()

Q 12 Rank in order of importance the perceived improvements in each of the following characteristics of information.

	Extremely low				Extremely High
	1	2	3	4	5
Accuracy	()	()	()	()	()
Accessibility	()	()	()	()	()
Reliability	()	()	()	()	()
Timeliness	()	()	()	()	()
Understandability	()	()	()	()	()

Q13 Before introduction of strategic management accounting, how satisfied were you with your business unit's;

	Extremely dissatisfied				Extremely satisfied
	1	2	3	4	5
a) Information on environmental and non-financial factors affecting the firm.	()	()	()	()	()
b) Cost reduction and differentiation opportunities.	()	()	()	()	()
c) Ability to determine non value adding activities .	()	()	()	()	()
d) Ability to decide on markets in which to compete	()	()	()	()	()

Q14 After introduction of strategic management accounting, how satisfied are you with your business unit's;

	Extremely dissatisfied			Extremely satisfied	
	1	2	3	4	5
a) Information on environmental and non-financial factors affecting the firm.	()	()	()	()	()
b) Cost reduction and differentiation opportunities.	()	()	()	()	()
c) Ability to determine non value adding activities .	()	()	()	()	()
d) Ability to decide on markets in which to compete	()	()	()	()	()

Q 15 Rank in order of importance the perceived improvements in each of the following characteristics of information.

	Extremely low			Extremely High	
	1	2	3	4	5
Accuracy	()	()	()	()	()
Accessibility	()	()	()	()	()
Reliability	()	()	()	()	()
Timeliness	()	()	()	()	()
Understandability	()	()	()	()	()

Q16 Before the introduction of JIT techniques, how satisfied were you with your business unit's;

	Extremely dissatisfied			Extremely satisfied	
	1	2	3	4	5
a) Levels of inventory	()	()	()	()	()
b) Frequency of production defects and waste	()	()	()	()	()
c) Quality and time of Product/service delivery	()	()	()	()	()

Q17 After the introduction of JIT techniques, how satisfied are you with your business unit's;

	Extremely dissatisfied				Extremely satisfied
	1	2	3	4	5
a) Levels of inventory	()	()	()	()	()
b) Frequency of production defects and waste	()	()	()	()	()
c) Quality and time of Product/service delivery	()	()	()	()	()

Q 18 Rank in order of importance the perceived improvements in each of the following characteristics of information.

	Extremely low				Extremely High
	1	2	3	4	5
Accuracy	()	()	()	()	()
Accessibility	()	()	()	()	()
Reliability	()	()	()	()	()
Timeliness	()	()	()	()	()
Understandability	()	()	()	()	()

Appendix 6- Letter to survey respondents

Dear sir/madam,

I am undertaking research towards a PhD at the University of Cape Town on the management accounting practices and management accounting change in developing countries. This research aim among other things, to develop management accounting principles that are appropriate for companies operating in emerging economies. It is hoped that the research findings will be useful to companies seeking to regain competitiveness and hence survive the present global competition.

This questionnaire is to investigate management accounting practices in developing countries and the changes that have taken place during the last decade. Once the results are at hand, I shall extend my study by conducting some case study investigations to explore the change in developing countries and the perceived benefits of this change or the failure to change.

The success of my study depends very much on your cooperation and support of this survey. Kindly fill in the attached questionnaire and return it to me in the reply paid envelope enclosed.

I assure you that neither your identity nor that of your company will in any way be linked to your response. If you would like to have a copy of the research findings please indicate on the first page of the questionnaire.

If you would require any clarification please email me on nwaweru@commerce.uct.ac.za or Tel ; 0216504029 / 0216899640

Thanks for your cooperation.

N.Waweru.

Appendix7- Letter to case study respondents

Dear Sir,

RE: Management Accounting Research

Thank you for responding to my survey questionnaire dated 11th July 2001. The response rate was quite encouraging.

I would now like to move to the final stage of my research. As advised in my earlier letter, this will involve a discussion with five selected company accountants on;

- Modern management accounting practices used by their companies.
- Changes that may have taken place in the field of management accounting during the last decade.
- Factors that have facilitated or hindered this change.

The discussion will take about one hour and a discussion guide will be sent to you well in advance. If there will be any practices that you will consider useful to your company, either during or after the discussion, I will be willing to assist in suggesting ways of implementing them.

As explained in my earlier letter, confidentiality is assured to all participants. No data will be associated with any individual or organisation. Ultimately the research interest is on underlying patterns across organisations and not in particular cases.

I will be contacting you soon on telephone to discuss your participation in the discussion. However if you require any clarifications before then, please email me on nwaweru@commerce.uct.ac.za or Telephone 0216504029 / 0216899640.

Looking forward to your kind cooperation.

Nelson Waweru

APPENDIX 8: Field-study regression and correlation results

Definition of variables:

- 1- Management accounting change
- 2- Intensity of competition
- 3- Degree of decentralisation
- 4- Size
- 5- Technological change
- 6- Organisational capacity to change

. alpha var1- var6

Test scale = mean(unstandardized items)
Reversed item: var2

Average interitem covariance: 5.276842
Number of items in the scale: 6
Scale Reliability Coefficient: 0.8766

. correlate var1 var2 var3 var4 var5 var6
(obs=5)

	var1	var2	var3	var4	var5	var6
var1	1.0000					
var2	-0.2504	1.0000				
var3	0.9475	-0.4590	1.0000			
var4	0.9415	-0.4272	0.9056	1.0000		
var5	0.1714	0.0712	0.3531	-0.0171	1.0000	
var6	0.9900	-0.3187	0.9334	0.9432	0.0726	1.0000

. regress var1 var3 var4 var6

Source	SS	df	MS	Number of obs = 5	
Model	83.874697	3	27.9582323	F(3, 1) =	21.10
Residual	1.32530301	1	1.32530301	Prob > F =	0.1584
				R-squared =	0.9844
				Adj R-squared =	0.9378
Total	85.20	4	21.30	Root MSE =	1.1512

var1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
var3	.2419732	.4882823	0.496	0.707	-5.962242	6.446188
var4	.069327	.8906216	0.078	0.951	-11.24709	11.38575
var6	1.012764	.5769433	1.755	0.330	-6.317995	8.343523
_cons	-10.08737	4.946928	-2.039	0.290	-72.94406	52.76931

. regress var1 var3

Source	SS	df	MS	Number of obs =
Model	76.4920354	1	76.4920354	5
Residual	8.7079646	3	2.90265487	F(1, 3) = 26.35
Total	85.20	4	21.30	Prob > F = 0.0143

R-squared = 0.8978
Adj R-squared = 0.8637
Root MSE = 1.7037

var1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
var3	1.300885	.2534128	5.133	0.014	.4944124 2.107357
_cons	-14.84071	5.978608	-2.482	0.089	-33.86731 4.185891

. regress var1 var4

Source	SS	df	MS	Number of obs =
Model	75.5287732	1	75.5287732	5
Residual	9.6712268	3	3.22374227	F(1, 3) = 23.43
Total	85.20	4	21.30	Prob > F = 0.0168

R-squared = 0.8865
Adj R-squared = 0.8487
Root MSE = 1.7955

var1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
var4	2.182534	.4509049	4.840	0.017	.7475534 3.617515
_cons	-2.663445	3.857665	-0.690	0.540	-14.94026 9.613366

. regress var1 var6

Source	SS	df	MS	Number of obs =
Model	83.5030303	1	83.5030303	5
Residual	1.6969697	3	.565656566	F(1, 3) = 147.62
Total	85.20	4	21.30	Prob > F = 0.0012

R-squared = 0.9801
Adj R-squared = 0.9734
Root MSE = .7521

var1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
var6	1.257576	.1035046	12.150	0.001	.9281781 1.586973
_cons	-8.545455	2.01555	-4.240	0.024	-14.95983 -2.131074

. regress var1 var2

Source	SS	df	MS	Number of obs = 5
Model	5.34006838	1	5.34006838	F(1, 3) = 0.20
Residual	79.8599316	3	26.6199772	Prob > F = 0.6846
Total	85.20	4	21.30	R-squared = 0.0627
				Adj R-squared = -0.2498
				Root MSE = 5.1595

var1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
var2	-.459321	1.025526	-0.448	0.685	-3.723003 2.804361
_cons	28.98094	29.9646	0.967	0.405	-66.37978 124.3417

. regress var1 var5

Source	SS	df	MS	Number of obs = 5
Model	2.50434783	1	2.50434783	F(1, 3) = 0.09
Residual	82.6956522	3	27.5652174	Prob > F = 0.7828
Total	85.20	4	21.30	R-squared = 0.0294
				Adj R-squared = -0.2941
				Root MSE = 5.2503

var1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
var5	.5217391	1.730959	0.301	0.783	-4.986945 6.030423
_cons	6.521739	30.21007	0.216	0.843	-89.62019 102.6637

. regress var3 var4

Source	SS	df	MS	Number of obs = 5
Model	37.069624	1	37.069624	F(1, 3) = 13.68
Residual	8.13037599	3	2.71012533	Prob > F = 0.0343
Total	45.20	4	11.30	R-squared = 0.8201
				Adj R-squared = 0.7602
				Root MSE = 1.6462

var3	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
var4	1.529023	.4134276	3.698	0.034	.2133114 2.844734
_cons	10.60514	3.537032	2.998	0.058	-.6512771 21.86155

. regress var3 var6

Source	SS	df	MS	Number of obs = 5
Model	39.3818182	1	39.3818182	F(1, 3) = 20.31
Residual	5.81818182	3	1.93939394	Prob > F = 0.0204
Total	45.20	4	11.30	R-squared = 0.8713
				Adj R-squared = 0.8284
				Root MSE = 1.3926

var3	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
var6	.8636364	1916532	4.506	0.020	.2537104 1.473562
_cons	6.818182	3.732074	1.827	0.165	-5.058943 18.69531

. regress var4 var6

Source	SS	df	MS	Number of obs = 5
Model	14.1070692	1	14.1070692	F(1, 3) = 24.20
Residual	1.74881082	3	.58293694	Prob > F = 0.0161
Total	15.85588	4	3.96397001	R-squared = 0.8897
				Adj R-squared = 0.8529
				Root MSE = .7635

var4	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
var6	.5168939	.1050737	4.919	0.016	.1825027 .8512852
_cons	-1.556364	2.046105	-0.761	0.502	-8.067984 4.955257

. regress var3 var5

Source	SS	df	MS	Number of obs = 5
Model	5.63478261	1	5.63478261	F(1, 3) = 0.43
Residual	39.5652174	3	13.1884058	Prob > F = 0.5600
Total	45.20	4	11.30	R-squared = 0.1247
				Adj R-squared = -0.1671
				Root MSE = 3.6316

var3	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
var5	.7826087	1.197298	0.654	0.560	-3.027728 4.592945
_cons	9.782609	20.89619	0.468	0.672	-56.71841 76.28362

Appendix 9: Chi-square (X^2) results**Types of budgets**

	df	X^2	Probability
Sector	15	7.3	0.32
Age	1	2	0.1
Size	1	2	0.1

Budgeting process

	df	X^2	Probability
Sector	14	11.9	0.3
Age	2	3	0.22
Size	4	6	0.11

Adoption of ABB

	df	X^2	Probability
Sector	8	12.2	0.08
Age	4	6	0.19
Size	4	6	0.19

Separation of costs

	df	X^2	Probability
Sector	21	25.8	0.12
Age	2	3	0.22
Size	4	6	0.9

Costing systems

	df	X^2	Probability
Sector	14	13.7	0.23
Age	4	6	0.19
Size	4	6	0.19

Adoption of ABC

	df	X^2	Probability
Sector	18	20	0.1
Age	2	3	0.2
Size	1	4	0.03

Adoption of JIT

	df	X^2	Probability
Sector	12	16	0.13
Age	4	6	0.19
Size	4	6	0.19

Pricing methods

	df	X ²	Probability
Sector	21	38	0.04
Age	9	12	0.21
Size	6	8	0.23

Transfer pricing

	df	X ²	Probability
Sector	21	33.2	0.04
Age	4	6	0.19
Size	3	14.8	0.05

Adoption of BSC

	df	X ²	Probability
Sector	20	24	0.24
Age	4	6	0.19
Size	4	11	0.05

Strategic priorities

	df	X ²	Probability
Size	6	7.6	0.17
Sector	12	16	0.13
Age	9	12	0.21

Adoption of Modern management practices

	df	X ²	Probability
Domicile	3	2.9	0.23
Size	8	5.2	0.15

Appendix 10. Perceived improvement of information Scores

Table 7.11: Perceived improvements of information after ABC

Factor	Extremely Low Score=1	2	3	4	Extremely High Score=5	Total Score	Rank
Accuracy	0	0	0	8	0	8	2
Accessibility	0	0	0	8	0	8	2
Reliability	0	0	0	0	10	10	1
Timeliness	0	0	0	0	10	10	1
Understandability	0	0	0	8	0	8	2
Total						44	

n=2

Table 7.12: Perceived improvements of information after BSC

Factor	Extremely Low Score=1	2	3	4	Extremely High Score=5	Total Score	Rank
Accuracy	0	0	0	16	5	21	3
Accessibility	0	0	3	12	5	20	4
Reliability	0	0	0	8	15	23	2
Timeliness	0	0	0	4	20	24	1
Understandability	0	0	3	16	0	19	5
Total						107	

n=5

Table 7.13: Perceived improvements of information after SMA

Factor	Extremely Low Score=1	2	3	4	Extremely High Score=5	Total Score	Rank
Accuracy	0	2	3	12	0	17	3
Accessibility	0	2	6	8	0	16	4
Reliability	0	2	3	8	5	18	2
Timeliness	0	0	3	4	15	22	1
Understandability	0	2	9	4	0	15	5
Total						88	

n=5