

UNIVERSITY OF DERBY

MANAGEMENT CONTROL SYSTEMS
AND MANAGEMENT ACCOUNTING
VARIETIES:

IN SEARCH OF PREVALENT PRACTICES
AND SUPERIOR PERFORMANCE IN GREEK FIRMS

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The following figures have been omitted on request of the University –

Fig. 2.1 pg. 24

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ABSTRACT

The purpose of this search is to clarify the extent to which firms have adopted certain traditional and recently developed management accounting practices (MAP), the benefits received from those practices and the intentions to emphasize certain MAP in the future. Also to verify the interactions that occur between MAP, contingent internal and external factors, and organizational performance. More specifically to test the improvement in financial and non-financial performance that is associated with MAP implementation and the conditions under such improvement is realized. At last, to investigate the reasons why Greek firms use specific MAP, and how management accounting information is placed and implemented in daily business practice.

This study uses a mix of data collection methods (questionnaire and interviews) to identify the extent of implementation and the types of management control systems used by Greek firms and more specifically the benefits gained from management accounting practices.

The findings indicate that, overall, the rates of adoption of traditional MAP were almost equal with the recently developed techniques, such as activity based costing and benchmarking, which were more widely adopted today than found in previous surveys. Also, the benefits obtained from traditional MAP techniques were higher than those of newer methods. The evidence suggests that many large Greek firms have adopted a range of management accounting methods that emphasize non-financial information and take a more strategic focus.

Also, a model tests the improvement in financial and non-financial performance that is associated with the use of certain management accounting practices and the conditions under which such improvement is achieved. Financial managers and controllers furnish information regarding firm's performance, extent of MAP usage, and contingent factors that have been identified in the literature as affecting MAP efficacy. Exploratory factor and regression analyses are used to investigate the relationship between MAP, contingent internal and external factors, and financial and non-financial performance indicators. Also, through a series of interviews, attempted to investigate the reasons that Greek firms use specific MAP, how this information is derived and the relative additional benefits. Management accounting information in Greece is the primary source for production and general planning, for pricing formulation, and for performance evaluation. Comparing with previous studies, Management Accounting (MA) practice in Greek firms has been upgraded remarkably in the last ten years. All latest improvements and innovations have added value to the firms and definitely reflect positively to their financial

and non-financial performance.

This research approaches the “ideal” management accounting concept but presents the actual daily practice of the Greek firms, provides insights into the relevance of MAP, interaction with contingent internal – external factors and organizational characteristics, underscores the most prevalent practice combinations for the organizational effectiveness, and exhibits their respective uses and benefits.

While the proposed hypotheses were not fully supported, these findings have credible explanations that preserve the logic of the basic model and one of the main purposes of this research.

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Chapter 1 - INTRODUCTION AND PROBLEM SETTING

1.1 INTRODUCTION

In recent years, much of the focus of performance research has shifted to management control systems and techniques and more specifically on management accounting and its respective traditional and contemporary practices. Organizations with more mature performance measurement systems report better results in terms of customer, financial and market performance (Evans, 2004).

Management accounting research presents evidence for some selective management accounting practices which combined with various internal and external factors lead to improved organizational performance (Chenhall and Langfield-Smith, 1998a, 1998b, 1998c; Cagwin and Bouwman, 2002; Chenhall, 2003; Kohen, 2005). Thus, the task of practitioners is to discover which MAP are the most prevalent ones and whether they are suitable for their organization to implement in order to maximize performance. Therefore this study presents, through the use of a questionnaire survey and interviews, the most prevalent management accounting practices (MAP) among Greek companies. Also, how these practices are affected by various internal and external contextual factors and how they are combined aiming to maximize a firm's performance.

The main purposes of this study are:

- First, to discover and present the variations and level of implementation of traditional and recently developed MAP in Greece, and also predict future trends.
- Second, to test the improvement in financial and non-financial performance that is associated with MAP implementation and the conditions under such improvement is realized. More specifically, to measure the increase or decrease in financial performance (market and corporate performance), as well as in the non-financial performance (operational performance). Also to examine the positive or negative interactions between MAP and various contingent internal and external organizational factors and how these interactions affect performance.
- Third, to investigate the reasons why Greek firms use specific MAP, and how management accounting information is placed and implemented in daily business practice.

To achieve the aforementioned purposes this thesis will use two broadly implemented research tools: a questionnaire survey and interviews. For the questionnaire survey a conceptual model is developed which offers information about the MAP

variations in Greece and attempts to investigate two broad relationships: a) the relationship between management accounting practices, internal – external contingent factors and firm performance, and b) the ideal (best) combinations among practices and contingent factors in order to achieve better performance. Based on this model, four hypotheses are offered and tested through the questionnaire survey in 198 large companies. Additional interviews were taken from 40 companies from the same sample who participated in the survey trying to discover further details and read between the lines of the questionnaire.

For the questionnaire survey, a basic conceptual model is developed which relates to contingency theory (Gordon and Miller, 1976; Hayes, 1977; Waterhouse and Tiessen, 1978; Otley, 1980, 1999) and builds on concepts and theory, trying to verify two important antecedents on firm performance:

- 1) A positive association between the extent of use of MAP and relative improvement in financial performance (corporate and market performance), and
- 2) A positive association between the extent of use of MAP and relative improvement in non financial performance (operational performance).

The development of this research is based on the following:

- a) Better results should be found when companies have adopted management accounting practices (MAP) which incorporate the most prevalent tools.

Then naturally comes the next question which is:

- b) What is the ideal combination of prevalent tools for companies to gain the maximum benefit and which are the contingent environmental and organizational factors (variables) that help or bind this procedure?

For the interviews, a random selection on the same sample of companies reveals further information about practical details on how firms use specific MAP in Greece, why, which are the most preferred ones, which ones are obliged by law and which are used for control, planning, or performance evaluation purposes.

1.2 PRACTICAL AND THEORETICAL IMPORTANCE OF THIS RESEARCH

During the eighties accounting practitioners and educators were heavily criticized on the grounds that management accounting practices had changed little over the preceding half of the century, despite radical changes in the business environment. Professional accounting institutes, perhaps fearing that management accountants would increasingly be seen as superfluous in business organizations, subsequently devoted considerable resources to the development of a more innovative skills set for management accountants (Kaplan,

1984a; 1984b).

Since then, and perhaps in reaction to these criticisms, a number of more sophisticated management accounting techniques have been developed. The most important innovations are the activity based techniques (activity based costing, activity based budgeting and activity based management), strategic management accounting and the balanced scorecard. The core idea for the development of these is to support modern technologies and management processes, such as total quality management and just-in-time production systems, and the search for a competitive advantage to meet the challenge of global competition (Kaplan and Atkinson, 1998).

The distinction between 'traditional' and 'innovative' (similarly 'currently' or 'recently') developed management accounting practices can be illustrated by reference to cost control techniques. Traditionally, management accountants' principal technique was the variance analysis, which is a systematic approach to the comparison of the actual and budgeted costs of the raw materials and labour used during a production period. While some form of variance analysis is still used by most manufacturing firms, it nowadays tends to be used in conjunction with innovative recently developed techniques such as life cycle cost analysis and activity-based costing, which are designed with specific aspects of the modern business environment in mind (Kaplan and Atkinson, 1998; Ittner and Larker, 2001).

Lifecycle costing recognizes that managers' ability to influence the cost of manufacturing a product is at its greatest when the product is still at the design stage of its product lifecycle (i.e., before the design has been finalised and production commenced), since small changes to the product design may lead to significant savings in the cost of manufacturing the product (Kaplan and Atkinson, 1998).

Activity-based costing (ABC) recognizes that, in modern factories, most manufacturing costs are determined by the amount of 'activities' (e.g., the number of production runs per month, and the amount of production equipment idle time) and that the key to effective cost control is therefore optimising the efficiency of these activities. Activity-based accounting is also known as cause and effect accounting (Kaplan and Norton, 2001). Both lifecycle costing and activity-based costing recognize that, in the typical modern factory, the avoidance of disruptive events (such as machine breakdowns and quality control failures) is of far greater importance than (for example) reducing the costs of raw materials. Activity-based costing also de-emphasises direct labour as a cost driver and concentrates instead on activities that drive costs, such as the provision of a service or the production of a product component (Kaplan and Atkinson, 1998; Kaplan and

Norton, 2001).

The most significant recent direction in managerial accounting is throughput accounting, which recognises the interdependencies of modern production processes and provide managers with a tool that will allow them to measure the contribution per unit of constrained resource for any given product, customer or supplier (Goldratt, 1999).

A seldom expressed alternative view of management accounting is that it is neither a neutral or benign influence in organizations, rather a mechanism for management control through surveillance. This view locates management accounting specifically in the context of management control theory (Otley, 1999).

Several studies have researched the adoption and benefits gained from traditional and currently developed MAP in the world (Chenhall and Lanfield-Smith, 1998a; 1998b; 1998c; Chenhall, 2003) and as a part of a broader Management Control System (MCS). However, there is not any Greek evidence of the adoption and benefits from both traditional and recently developed MAP, or the attention that firms have to focus on particular MAP in the future. One of the purposes of this thesis is to contribute to MA knowledge in this area regarding Greek practice. Also, these findings are compared with those of other survey-based studies.

Insight into the relationship among MAP (as a basic component of a broader MCS), organizational characteristics, environmental contingencies and firm performance has both practical and theoretical significance. On the practical side, technological breakthroughs and rapidly shifting environments have led to fundamental changes in firm competition. These changes often overwhelm managers who are responsible for selecting, implementing and managing various MCS where MAP constitute a basic component. Strategy tools, such as industry analysis (Porter, 1980), are of little help to managers in an environment where there is fierce competition (McColl, 1995). Research that reveals insight into the relationship among MAP, organizational characteristics, environmental contingencies and firm performance can offer managers valuable understanding and tools for analysis.

In addition, the investigation of the relationships among MAP, organizational characteristics, environmental contingencies and performance is interesting because it involves an association and application of important theoretical ideas. First, extant theory regarding management accounting provides persuasive theoretical foundations for understanding the relationship between MAP and organizational performance. Second, the influence of external contingencies in combination with organizational characteristics shares many ideas that have been developed in various theories literature such as: the contingency theory and the interpretive theory. Dimensions that have been developed in these theories research streams

can be reapplied to provide a much-needed specificity to the social concept in strategic management of organizations.

Also, through a series of interviews this research describes the state of the art of MAP in Greek organizations. MAP are presented in a daily practice framework and how they evolved in the last ten years.

Ultimately, insight into specific perceptual dimensions of the above issues and the performance implications of these dimensions, may offer significant benefits to practitioners and members of academic society. Previous research and existing theory can be applied to gain systematic understanding of the effective strategic management of MAP, organizational characteristics and environmental contingencies. To address the above gaps this study basically aims to examine, through practitioners real experience, which combination of management accounting tools, organizational characteristics and internal and external organizational factors form a synergistic bundle that represent an ideal system for firms and validate the efficiency of this system and maximize performance.

In summary, the main research questions and associated objectives are presented in the Table 1.1 further below.

1.3 OVERVIEW OF THE RESEARCH PHILOSOPHY

Daft and Weick (1984) note that any study of organizations is rooted in fundamental, often unarticulated assumptions about organizations, their structures and their functions. The hypotheses and research questions of this study are based on the grounds of the following theories: a) the contingency theory, and b) the interpretive theory.

In the beginning of eighties, Otley (1984) studied the connection between management accounting and organization theory. One of his major points was that organization theory was not just a solid piece of work but was divided in different parts. For instance, some of these parts are: contingency theory, systems theory, organizational and behavioral theory. His survey revealed that the work of management accounting research had as a main purpose to explain the management accounting practices. One major conclusion was that researchers gave more emphasis to theory rather to empirical results. Also the emphasis of management accounting research based on organizational theory was the same as to one of economic based management accounting research, which both attempt to explain management accounting practice. One of his suggestions was for more qualitative and interpretive research and case studies.

The contingency theory has the basic assumption that there is no common

accounting system replicated evenly to all organizations in all cases (Emmanuel *et al.*, 1990). In the same study an analytical list of authors is presented with their respective contribution to contingency theory. Specific modes of an accounting system depend on the relevant circumstances where the organization belongs. Gordon and Miller (1976), Hayes (1977), Waterhouse and Tiessen (1978), and Otley (1980), among others, conclude that there is no universally applicable system of management accounting and control. The selection of the appropriate systems relies upon the respective business environments where the firms belong to. The most popular contingent factors are the external environment, technology, competitive strategy and mission, business unit and industry characteristics, knowledge and observability factors (Fisher, 1995).

Intner and Larker (2001, p. 352) quote “Contingency theories expanded the managerial planning and control framework by articulating some of the contextual or “contingent” factors influencing the entire organizational control “package” of accounting and non-accounting information systems, organizational design, and other control mechanisms”. Also, contingency based studies report a liaison between the utilization of MAP and improved organizational performance.

An interpretive view of the firm is based on the research of Cyert and March (1963) and others of the Carnegie School (Dearbom and Simon, 1958; March and Simon, 1958) who were the pioneers in theorizing concerning non-rational behaviors that occur within firms. These academics argue that the capacity of executives to collect and process information, as well as to predict the consequences of alternatives considered, is limited. While managers intend to act rationally, their rationality is bounded (March and Simon, 1958) by a variety of forces not considered in neoclassical economic theory, including intentions to avoid uncertainty and goal satisfying (achieving acceptable levels of performance instead of optimal levels). Executives’ choices on MAP and MCS are critical and MA as a social behavior needs to be analyzed in order the practitioners to understand its various parts and their impact on the organization.

The notion of environment permitting the MA tools to take place and the managerial task of setting up the environment to enable it to happen – also links in to the management and communication of the MA tools. Are the contingent variables supporting (enabling) or blocking (disabling) the selection - use and value of each tool? The hypotheses suggest that the contingent variables predetermine or influence the selection and use of particular combinations of MA tools having an indirect effect on the firm’s performance. There will thus be merits in interviewing managers to explore their perceptions and views on the selection and use of particular combinations of MA tools and

compare and contrast these to other organizations which different combinations of MA tools and different views of the contingent variables.

The aforementioned two theories form the base for our research framework. This study adopts their major philosophical principles in order to attain its aims and objectives and follow Otley's (1984) suggestions for focusing into qualitative, interpretive and empirical results.

Summarizing, organizational theory has developed the argument that firms are not the black boxes of neoclassical economic theory. Managers' choices matter. Therefore, organizations are subject to the bounded rational views of individuals, and the choices of executives are especially important. Management accounting as a social behavior needs to be analyzed to understand its various components and practices and their impact on the organization. This study attempting to analyze MAP in Greece and their effects on firms' performance will utilize the two traditional methods of survey: questionnaires and interviews.

1.4 MAP AND FIRM PERFORMANCE – THEORETICAL FRAMEWORK

Simon *et al.* (1954) presented accounting as serving three main functions: attention directing, problem solving and scorecard keeping. All these functions serve control. Management accounting (MA) is a tool which contributes significantly in the decision process in organizations. This implies that its functions must provide support for the entity to obtain better results than under the conditions of its non-existence. Emmanuel *et al.* (1990) present performance evaluation as a major function of management accounting. Managers seek efficient control but this should not be at the expense of effective control.

Organizational effectiveness compares present achievement with what could be done if resources were managed more effectively. Where a problem has been defined any solution should recognize the coalition of diverse interest groups establish the objective to be achieved and that control system should possess the four elements of Tocher's control model, which are: Clear and measurable objectives, measures, an interpretive and predictive model, alternative scenarios (Tocher, 1972). Similarly, Otley (1999) presents a set of five issues which have to be considered when developing a framework for controlling organizational performance these are: Organizational objectives, adoption of plans, performance goals, rewards and penalties, and information flows regarding MIS and MCS. In his concluding remarks he states that performance management offers a significant integrating framework both academically and practically.

The use of management accounting and control systems can be fruitfully analyzed from the framework of performance measurement and performance management. “This makes it clear that management accounting and other performance measurement practices need to be evaluated not just from an economic perspective, but from a social, behavioral and managerial perspective, within an overall organizational context.” (Otley, 1999, p.381).

Anthony (1988) considered that management control (MC) is the way to assure that the strategies are followed and the goals are accomplished. MC includes activities like planning, coordination, communication, assignment, decision and influence on the people that are involved with a view to changing their behavior. Also, management accounting (MA), management accounting systems (MAS), management control systems (MCS), and organizational control (OC) are terms with similar content and many times are used interchangeably. The first, MA, refers to various practices such as budgeting or product costing, etc., while MAS refers to the systematic use of MA to achieve some goal, MCS is a wider term which includes MAS and other types of controls such as personal or mass controls. OC could be used for controls included in activities or processes such as statistical quality control or just in time management (Chenhall, 2003, p.129).

Otley (1986) considered that systems designated to serve all purposes are unlikely to be uniformly successful as the MC system requires to be tailored to fit the specific circumstances of the organization for which it will be implemented.

In the 1990s, managerial accounting changed its focus in new accounting methods promoting value creation. These methods include the rise of balance scorecards of indicators of economic success (Kaplan and Norton, 1996), economic value or value added indicators for shareholder returns (Rappaport, 1986; Stewart, 1991) and strategic management accounting systems which provide information on current and future situations of strategic uncertainties (Bromwich, 1990; Simons, 1991). More recently, management accountants are increasingly seen as business partners, focusing more and more on key strategic issues, well beyond the boundary of traditional finance. These new roles, combined with the traditional role of cost management, will lift the management accounting into the next phase of accountability and responsibility (Ernst & Young, 2003).

Lately, MA received some criticism as Otley tried to review MAP in the last twenty years. A major issue he tries to underline is that the role of traditional management accounting is diminishing and concludes that he does not believe that “management accounting” is any longer a useful conceptual category for organizing research activity (Otley, 2008, pp. 229-30).

Additionally, Milne *et al.* (2008) question the role of MA practitioners and they

suggest: "Rather, we need to examine organizational routines and practices to better understand the functions they serve. One category of such routines might usefully be thought of as "control" procedures. These involve the processes in which organizations engage to help ensure that their strategies, plans and objectives are attained. Thus, the category of "management control systems" or "performance management systems" provides a more focused framework for analysis. This conclusion will be shown to have far reaching implications for the practice of academic research." (Milne *et al.*, 2008, p.123).

The research relates this view to contingency theory where specific modes of an accounting system depend on the relevant circumstances where the organization belongs and there is no universally applicable system of management accounting and control. The selection of the appropriate systems relies upon the respective business environments to which the firms and their managers belong. Within a contingent framework, there is no typical or fixed rule to the previous statement because there is a number of factors that determine the context of every organization. Also it attempts to explore the role of management accountant in the Greek enterprise, is it important? What is the opinion of managers for management accountants in the organizations?

Several studies have explored the positive effects derived from traditional and contemporary MAP in the Asia, Europe and the rest of the world (Shields, 1998; Haldma and Laats, 2002; Lin and Yu, 2002; Szychta, 2002; O'Connor, *et al.*, 2004). Chenhall and Langfield-Smith (1998) in their concluding comments suggest that future research should be directed to gain a better understanding of the factors that influence differences in the levels of adoption of recently developed MA techniques between countries.

Attempting to measure the improvement in financial performance and MAP, and more specifically Activity Based Costing (ABC), Cagwin and Bouwman (2002) presented a model explaining the conditions under which ABC is related with improvement of Return On Investment (ROI). In their findings also report that when ABC is used concurrently with Just In Time (JIT), Total Quality Management (TQM), etc, companies enjoy an improvement in financial performance greater than obtained from use of those strategic business initiatives without ABC. They also argue that the sum of the benefits of implementing ABC is greater than the costs incurred but it has not been demonstrated. Their finding is consistent with statements that management accounting systems are meant to be efficient in supporting organizations' operational effectiveness (Granlud and Lukka, 1998; Cooper, 1996; Granlud, 1997).

Chenhall and Langfield-Smith (1998b) surveying the Australian manufacturing sector found that the traditional management accounting techniques were found to be more

widely adopted than the recently developed ones, also there is an intention for greater attention to newer techniques in the future, especially activity-based techniques and benchmarking. They soundly suggest further investigation for better understanding of the factors that influence differences in the levels of adoption of recently developed MA techniques between counties.

Finch (2002) in his study used the term 'integrated management frameworks' just to focus to "the fact that what is being adopted is a collection of procedures, ideas, values and tools which together form a management practice" (Leseure *et al*, 2004). Adopting Finch's (2002) rationale in this study, the term MAP includes a prevalent collection of MA tools and procedures which form the contemporary management accounting practice in the Greek firms.

Besides management's opinion that management accounting systems (MAS) pass the cost-benefit test (Foster and Young, 1997) there is no significant research results to validate the alleged benefits of MAP combinations and their interaction with internal and external environmental and organizational factors and its impact on financial and non financial performance. Chenhall (2003) suggests that MCS are useful, improve job satisfaction and enhance organizational performance, however, he argues that there is no evidence to suggest that such links exist. He also proposes the investigation of contextual settings within which they maybe most beneficial (Ibid, pp.130-132).

Ballas and Venieris (1996) in their concluding remarks state that most Greek companies used accounting for fiscal consideration purposes instead as a tool to improve their management. MAP for Greek companies was summarized mostly in cost and budgeting methods aiming in better pricing and planning practices. Some companies were aware of modern costing methods such as ABC but the majority of firms followed the traditional costing methods such as full costing.

To date, no empirical research has integrated the aforementioned theories to examine the effects of MAP influenced by the specific internal - external contingencies and organizational characteristics and measure them against firm performance. Also, for Greece and internationally, there has never been any research to record all MAP categories analytically, whether these practices affect firms' performance, why firms prefer some particular practices, what difficulties do they face implementing them, and which are the most beneficial ones. To address these gaps, a detailed model is developed to describe the relationship between MAP and specific internal and external contingencies and organizational characteristics on firm performance. Also through extensive interviews practitioners were invited to comment on their MCS and MAP systems and how these

practices affect companies' performance. Thus, four hypotheses are generated and tested using a questionnaire survey followed by extensive interviews on the medium and large-sized organizations in Greece.

Table 1.1: Main research questions and associate objectives

<p>1. Are MA tools related to superior organizational performance, financial and non-financial? Is there a pattern of MAPs that is associated with higher firm performance?</p>	<p>1.1 To develop a theoretically-grounded model of MAP as key antecedents to firm performance – Figure 3.1.</p>
<p>2. What is the effect of organizational characteristics and various contextual contingencies on MAP? How do they help or bind MAP implementation?</p>	<p>2.1 To test empirically the interaction between MAP and internal organizational characteristics such as size, type, etc. and contingent factors such as management techniques, business philosophy, etc.</p>
<p>3. What is the prevalent combination of tools for companies and how they gain the maximum benefit?</p>	<p>3.1 To identify the modes and varieties of MAP in Greece and the benefits gained from the implementation of the respective procedures</p>
<p>4. Which are the contingent environmental and organizational factors that help or bind this procedure?</p>	<p>4.1 To measure the level of adoption (high-medium-low) and identify the respective contextual factors (contingencies) which constrain or accelerate the adoption of MA tools</p>
<p>5. What is the participation level of traditional MA tools to MAP? Which MA tools are more beneficial to organizations? The traditional or the recently developed ones? Which ones are preferred by practitioners and why?</p>	<p>5.1 To identify which combinations of MA tools, are related to higher performance and try to explain the variations in performance in terms of interaction effects between context and structure</p> <p>5.2 To identify the level of sophistication of MAP in Greece</p> <p>5.3 To develop recommendations for executives to create value for their firms.</p>

1.5 THESIS STRUCTURE

Chapter 2 provides further discussion regarding the context of management accounting and organisational control before developing the importance of social theories thinking related to the use of management accounting techniques to support management control. Literature is used to explore system designs and management accounting. The

discussion develops the notion of most prevalent MAP by linking its meaning to performance. Chapter 3 covers the development of a conceptual model and its testing via four hypotheses. The measures used are justified through reference to an analysis of past examples in the literature. Chapter 4 considers the research methodology and describes approaches used to ensure the reliability and validity of the methods employed to collect and analyse data. Chapter 5 describes the whole interview procedure and reports the relative results. Chapter 6 identifies the results of the whole survey analysis. Chapter 7 discusses the research findings - conclusions and suggests some future directions.

Chapter 2 - LITERATURE REVIEW

This chapter provides the relevant theoretical and recent empirical background on the proposed theme under examination, which covers MCSs and management accounting practices and their relationship to business performance under the influence of some environmental and firm control variables.

A contingency based view of the basic components of MAP is central to this study. The MAP concept therefore is developed based on ideas suggested on MA literature and how it is affected by influences noted in social theories such as the interpretive theory of the firm, all these are presented in the first section.

The key independent constructs of the proposed conceptual framework-model are based on the analysis of MAP, organizational characteristics, and contingent internal and external organizational factors. To provide empirical and theoretical background mostly for the MA constructs; literature which explores the behaviour of each one; how they interact each other and with firm performance is reviewed in the second section of this chapter. This literature highlights the significance of the participation of each one of the above components in firm performance. Information about the rest of variables, other than MAP, – i.e. organizational characteristics, contingent internal and external organizational factors is presented in greater analysis in chapter 3.

2.1 THE MANAGEMENT ACCOUNTING FRAMEWORK, SOCIAL THEORIES AND SOME EMPIRICAL RESULTS

The purpose of this part is to create a deeper analysis of management accounting and more specifically with management accounting control systems and how they integrate with the control process.

2.1.1 Introduction to Control

Control in organizations refers on the procedure of assuring that their activities comply with plans and eventually aims are achieved. Control and controls have been distinguished by Drucker (1964). Controls are measurement and information or purely a means to an end whereas control means direction or the end. Control is the procedure that assures that real work is performed to fulfill the original plan and controls are utilized to give support information in determining the control action to be taken. When the actual costs exceed the budgeted ones “controls” is the tool which will dictate the reason why that situation occurred. “Control” is the corrective action which assures that the aforementioned situation will not be repeated or will be reduced significantly. Controls include all the

means that drive personnel towards the organizational objectives. Merchant (1998) divides control in two major categories: strategic and management control. Strategic control is focused more on external issues and mainly in the area of competition. Management control is focused more on internal issues and especially on employee attitudes and the achievement of organizational goals. Organizations in order to achieve control implement different mechanisms. Ouchi (1979) and Merchant (1998) divide controls in three major categories: Action or behavioral controls, personnel and cultural or clan and social controls, and finally, results or output controls.

a) Action or behavioral controls

Action controls according to Merchant (1998) refers to circumstances where the actions are the center for controls. They are effective only when executives know what actions are desirable or undesirable and attempt to assure the first ones to occur and the second ones not to occur. Forms of this type of actions include the following three categories:

Behavioral constraints which attempt to stop people from doing things that should not be done, for example computer passwords.

Pre-action reviews which require the approval of action plans of the people being controlled before they can undertake a course of action, for example approval of architectural plans before the commencing of a building construction.

Action accountability which defines acceptable or unacceptable actions, includes observation of these actions and eventually suggests rewards or punishments for the respective cases, for example budgeting procedure, approved actions, punishments or rewards for respective deficits or surpluses.

Action controls in general focus on preventing events for occurring by controlling behavior. Action controls are the most effective form of control because there is a direct connection between the control mechanism and the action and a high probability that goals will be finally achieved. The major drawback of action controls is, because they rely on cause and effect work relationship, they are well understood but not feasible in many cases. These types of control are suggested for jobs with high routine. They do not encourage creativity and adaptability to different circumstances and are not suggested for changing environments.

Behavioral controls suggested by Ouchi (1979) are about observing the actions of people related to their job. They are suggested for situations where cause and effect relationships are applicable, so, if appropriate procedures are followed respective results

are expected. For example, the supervisor has to assure that the work of the employees is made as prescribed, so as the outcome should reflect the expected qualitative and quantitative characteristics.

b) Personnel and cultural or clan and social controls,

Clan controls, as described by Ouchi (1979), are based on the idea that by growing a sense of unity and loyalty towards organizational goals employees should become very interested in these goals. One of the main characteristics of clan controls is the sound discipline of employees.

Social control refers to the selection of employees, who already are familiar with the particular norms, in order to perform particular tasks.

Personnel controls are suggested by Merchant (1998) as means of assistance to employees to perform better by developing their natural tendencies to control themselves. He dictates three techniques for implementing personnel control. These are: selection and placement, training and job design, provision of necessary resources.

Cultural controls usually reflect on values, social norms and beliefs that are part of members of the organization and affect their actions. For example cultural controls are implemented among colleagues when they refer to procedures in order to regulate performance and bring back in the proper condition those who have deviated.

Merchant (1998) suggests that these controls are indicated when employees in their particular positions realized what is needed, are capable to perform better, and are willing to perform better without any additional rewards or punishments by the organization.

c) Results or output controls

Output or results control refers to gathering and presenting information about the final outcome of some work effort. Executives need not to be aware about the means which produce the final result or to be present in order to supervise the work of their subordinates. Output reports are the means to ascertain if targets have been achieved or not. One such form of output control is the accounting control systems, mostly referring to financial terms such as revenues, costs, profits and ratios. They also refer to non-accounting terms such as frequency and severity rates of accidents in production plants, production statistics, personnel turnover, etc. (Ouchi, 1979).

Results controls usually include the following stages (Ouchi, 1979):

- Setting output measures which diminish unacceptable behavior
- Setting performance goals

- Evaluating performance
- Setting reward or punishment

Organizations should pre-set performance goals so employees act and perform accordingly. Clearly defined quantitative targets will motivate higher performance instead of vague statements of “do as you can”. This way is easier for superiors to measure the final outcome because they have to compare final results against the predetermined ones. Also there is an important detail which determines the effectiveness of measuring performance, this is, if uncontrollable factors cannot be separated from controllable factors, measures will not provide reliable results for measuring the work accomplished. Therefore, the controllability principle could be mentioned, which refers to individuals whose actions are being controlled and which could have an influence on the results control measures. Employees are encouraged to achieve some targets by having as a motive some rewards (salary increase, promotion, bonuses, additional vacation, trips, etc). In case they fail and the results are on the opposite of the goals set organizations could set some punishments (delay of promotion, salary penalties, lay off, etc).

The major advantage of results control is that could be applied when there is a lack of desirable actions. Also another one is that their implementation does not restrict individual autonomy and employees are free to choose how they can best achieve the results. The major drawback of results control is when goals are partially defined and could be some difficulties in separating controllable and uncontrollable factors and wrong measurement of performance (Ouchi, 1979).

When controls influence employees in a not desirable organizational behavior then there is the phenomenon of lack of goal congruence. On the opposite side, when controls influence employees in a desirable organizational behavior then they are described as encouraging goal congruence. Results control could lead to lack of goal congruence if the goals set are only partially specified. In this case employees are focused on what is observed by the control system and in many cases refer to individual performance regardless if it is organizationally desired and contributes to organization’s objectives (Ouchi, 1979).

Control and Organizations

Control is concerned not with correcting past mistakes, but directing future activities. Thus management control consists, in part, of inducing people in an organization to do things and refrain from doing others (Sizer, 1979). A manager’s understanding of what is an organization may influence the approach taken to control. Scapens, Otley and

Lister (1984) proposed that two contrasting views resulted from different understanding of a) control and b) the role of management control.

The first view perceives organizations as needing to be designed to pursue its goals and managed using rational and neutral sets of procedures intended to ensure organizational effectiveness – a designed artifact. The second view assumes organizations to be a natural phenomenon with control and specifically management control being concerned with the exercise of power and influence by one interest group to enable them to dominate other groups.

Figure 2.1: The Organization as a Natural Phenomenon, not a designed artifact (Scapens, Otley and Lister, 1984 in Emmanuel *et al.*, 1990, p.41)

A Control Model

Tocher (1970; 1976) stated the four elements should be present in a control system if it is to regulate itself, reproduce, evolve and learn:

- a) study the objectives,
- b) measurement,
- c) prediction
- d) alternatives generated.

These four elements will be crucial as the course develops. It should have an 'open system' orientation; there is a focus on how organizations need to adapt to demands of their environment, if they are to survive, just like biological organisms. An 'Input Transformation Processes - Outputs' model. Otley and Berry's (1980) model stresses the importance of measurement at each of the stages 'Input - Transformation Processes - Outputs'. The concepts of 'feed forward' and 'feedback' control result.

In similar manner Hofstede (1981), takes a contingent approach but presents Tocher's four elements as questions

1. Are Objectives Unambiguous?
2. Are Outputs Measurable?
3. Are Effects of Interventions Known?
 - ◊ Outcomes - Predictable
4. Is Activity Repetitive?

Choice of Control

The beginning of administrative wisdom is the knowledge that there is no optimum type of management system (Burns and Stalker, 1961). So how do managers select a control?

Hopwood (1974) states that the control of the organization involves administrative, social and self control, while Merchant (1998) notes that control can be categorized into Results Control, Action Control and Personnel or Cultural Control. Also Ouchi (1979) has a similar list, Drury (2000, pp.594-602). However Merchant relates the type of control to Control Problems. The manager is more likely to employ the appropriate type of control when the problem has been categorized as resulting from either (i) a lack of direction, (ii) motivational problems or (iii) personal limitations of the individuals / groups involved. More can be found on Drury (2000) chapter 16. Also, Hopwood (1974) notes that control of the organization involves administrative, social and self control. Merchant (1998) states that control can be categorized into Results Control; Action Control and Personnel or Cultural Control. See Figure 2.2.

Figure 2.2: Control types and control problems (Merchant, 1998, p.253)

A fuller exploration of a control system used within this module can be gained from Otley and Berry (1980).

Figure 2.3: Control, organization and accounting, Otley and Berry (1980, p.233)

The General Systems perspective tells us that control is process of adaptation to ones environment and relates to such ideas as:

- to check or verify;
- to regulate;
- to compare with a standard;

- to exercise authority over;
- to curb or restrain.

Organizational control requires a closed-loop control system within which errors are corrected as the process goes along. Likely errors can be anticipated and actions taken to avoid them occurring (feed forward) and actual errors during the process can be identified and behavior modified to achieve desired objectives (feedback).

Types of Control

- **Feedback Control:** ex-post evaluation of actual results with desired results. Deviations are reduced or eliminated, bringing future performance back on track. It is reactive and occurs on a pre-determined timing. E.g. budgets/standard setting; monitoring inputs; monitoring operations (transformation processes) and predicting process outputs; originating information which will eventually act as a basis for feedback control.
- **Feed forward Control:** predictions are made of expected outcomes. If these expectations deviate from desired results, action is implemented to reduce these deviations. It is proactive and likely to occur episodically, e.g. standard setting; performance measurement; reporting of results.

2.1.2 Accounting And Control

Scapens (1984) had performed a survey regarding management accounting and identified the major areas in this topic which are planning, cost classification, control (as responsibility accounting), costing and accounting for divisionalized organizations. He claimed that cost allocations are arbitrary resulting to favorable treatments focusing on short term decision making. Otley (1984) stated management accounting as part of micro-economic theory and described its wider social role. He identified management accounting as a control tool and the existing relationship between accounting systems and organizational design. Also he focused on behavioral issues of accounting and stated that when performance is measured through budgetary control they have an effect on human behavior and people have an effect on budgets aiming on individual benefits.

Aoki (1984) argued that the firm is not there to serve only the shareholders interests. There are three participating and interacting groups that should be treated equally, the shareholders, the workers and the management, which all three should be satisfied in order to exist as behavioral balance. This process is named the collective game

theory. Tinker (1985) criticized conventional accounting by stating that it fails to reallocate the wealth of various groups of stakeholders and also that there is a need to change accounting to serve the actual needs of society. Johnson and Kaplan (1987) have focused on the role of management accounting which has changed and there is no longer relevance to managerial needs.

2.1.3 The Principle Of Controllability

The basic rule in responsibility accounting is the principle of controllability which states that only those costs which are controlled by the respective manager should be charged to the respective responsibility center. Therefore reports should distinguish between controllable and uncontrollable factors which in practice are not always feasible for executives to control or avoid them, for example, competitors' actions, price changes. Merchant (1998) distinguishes uncontrollable factors in three categories:

a) Economic and competitive factors. Sales revenues most commonly are influenced by customers' habits, competitors' actions, product life cycles, governmental policies, exchange rates, etc. Costs usually are affected by changes in raw materials, exchange rates, interest rates, governmental policies, tax regulations, etc. The challenge for managers is to react and adapt quickly to new conditions. Management accounting control systems do not provide a protective umbrella to executives from economic and competitive factors but rather give enough information to them in order to identify the changes that occur and to give a quick and correct reaction.

b) Acts of nature. These are events where managers have no power of control on them and cannot react. Some examples are disasters such as floods, riots, fires, accidents, etc. Most organizations recognize these categories as uncontrollable phenomena and in most cases do not hold managers liable for their effects.

c) Interdependencies. This kind of factors is usually pooled resources which include higher costs coming from bad performance of these resources as a whole. A correct identification and charging the appropriate costs where they should be charged is sometimes a difficult procedure but usually necessary in order to avoid the distorting effects. Also appropriate negotiations and agreements during the budget period could protect executives from misrepresentations of shared resource pools.

Uncontrollable and controllable items can be distinguished and defined before the measuring performance period. Merchant (1998) answers the question of how items are divided in controllable and uncontrollable by suggesting the following general rule: to hold employees accountable for the performance areas they should be responsible for or there is

a need for them to pay attention too.

2.1.4 Accounting For Control – Some Limits

In the eighties there was an effort to describe the limits of accounting, also later on received more positive criticism. Hogarth (1993), by introducing the behavioral decision theory into accounting tried to present accounting in a different way than the previous mechanistic one by using knowledge from other areas such as management science. He argued that there is a bounded rationality into knowledge which limits the managerial decision making within restricted knowledge domain. Hopper *et al.* (1987) presented accounting from a technical and behavioral point of view. They presented some weak areas of accounting and deal with problems arising from the distribution of wealth to stakeholders, trends in management control systems, and with the cultural and behavioral character of accounting. They present the view that accounting does not only offer reports but it influences managerial behavior which derives from the cultural influences of the organization where the executive works. While this study adds to the theory of management accounting it fails to gain some recognition when it comes to practice.

Rappaport (1986) focuses on accounting problems such as the absence of risk in investments in investment analysis, the ignorance of time value of money and he emphasizes more the issue of creation and existence of shareholder value. He also defines business strategies which create value and analyses the relationship of organizational performance and executive compensation. In his analysis he has underlined shareholder value as a core theme and major concern of the firm.

Hofstede (1976) argues that past performance cannot guarantee anything for the future. Robson (1992) states that accounting enables the splitting of control from its actual operations and thereby enables headquarters to control effectively operations in different locations. Here comes Swanson (1978) as well to add that all information concerning the organization has to be considered especially the one referring to environment. Mak (1989) concludes that there is a balance between different levels of control systems and is connected to financial performance, more specifically the higher the integration of control systems the higher the performance. Also control systems depend to some extent on environmental uncertainty, more specifically the higher the environmental uncertainty the higher the need for rigid control systems. The connection between control systems and performance leads to the conclusion that accounting is not just a tool for reporting performance but also a mechanism to shape performance.

Some times accounting and control process, such as budgeting and reporting, are

used in the organizational politics. Wildavsky (1975) describes budgeting as a mechanism of using financial resources for needs of managers, also (ibid, 1984) executives many times use more than they need and this is mainly for negotiating reasons to achieve a final agreement. Covalenski and Dirsmith (1986) argue that budgeting is a basis for rational decision making through evaluations of alternatives and outcomes. Also they argue that there is a linear relationship between strategy and budgeting where actual behavior is more complex than theory has presented so far. Macintosh (1985) considers the negative effects of budgeting in the area of leader style, group dynamics and involvement in the process. Otley and Berry (1979) present evidence for favorable treatment of risk in preferred projects than less preferred ones and Bringberg *et al.* (1983) state that exception reporting could mislead management attention by focusing on significant areas overlooking at the same time other areas with potential significance. Thus if budgeting is considered as a part of the control process then the behavioral, technical and quantitative terms of this budgeting system should be thoroughly considered.

2.1.5 The Effectiveness Of Accounting Measures

There are a lot of arguments by researchers against the effectiveness of accounting measures as tools of measuring and reporting organizational performance. Some attention has attracted the rate of return as a measure of control. Dearden (1969) presents return on investment (ROI) as a measure of performance focusing on both technical drawbacks, including the differing methods of transfer pricing, and implementation difficulties, including the constraint of setting true and achievable profit objectives and the constraint of assigning responsibility, thus he demonstrates the limitations to the use of ROI as a means of evaluating divisional performance. Alternatively he proposes that the use of residual income would provide a means of overcoming these difficulties.

On the contrary Emmanuel and Otley (1976) criticize residual income as a method of evaluating performance, arguing that there is a danger in evaluating individual divisional performances while neglecting the total performance of the organization, forgetting that this is the key criterion. Also Emmanuel and Gee (1982) argue that transfer pricing can be a fair and neutral process while Watson and Baumler (1975) argue that transfer pricing can either enforce differentiation or associate integration in the whole organization depending on its use, while Grabski (1985) investigates existence of different transfer pricing models, such as the behavioral, economic and mathematical programming models, and considers their respective applicability and concludes that they can each have different effects depending on their mode of application.

Jarrett (1983), on the other hand, deals with the limitations of internal rate of return (IRR) as a technique of evaluating performance and defining the distribution of resources. He states that the practices of net present value and net future value lead to different results and that the greater uncertainty in future cash flows and the longer lives of assets lead to greater uncertainty and therefore financial information supplied in reporting is less reliable. Scapens (1983), on the other hand, suggests that maximizing economic profit leads to net present value (NPV) maximizing decisions and analyses the difference between operating and investment decisions.

Spicer (1988), however, divides decisions in two categories, central and diversified decisions and defines the need to take into consideration incentives, risk, and conflicts of interest.

Technical limitations as well as behavioral variables therefore seem to limit the value of accounting as a means of controlling a business and measuring its performance. Swieringa and Weick (1987) recognize this and argue that ROI and variance analysis help in decision making but they can also directly affect motivation and commitment, can affect short-term strategy and groupthink and can also eliminate options as well as explain and define them.

In considering the role of accounting in the control process and the role of the control process in the management of an organization it is important to recognize the purpose of management accounting which has been described by Emmanuel *et al.* (1985) as containing three functions (already mentioned) namely: scorecard of performance; attention directing towards important factors; and help in decision making.

Hopwood (1983) considers the difficulties of accounting in terms of the context in which it operates. Spicer and Ballew (1983) argue that organizational structure is a significant determinant of the effectiveness of management accounting and control systems because structure can affect the following: information transfer needs within the firm; the need for internal governance structures, such as transfer pricing rules; the level of formal and informal participation within the firm; and the ability of firm members to seek personal goals contrary to organizational goals.

Kaplan (1984) suggests that cost accounting techniques used in management accounting may no longer be relevant because of the changes in types of organizations and the much lower labor participation in product making. He also argues that it is clear that profit is usually used to motivate managers and evaluate short-term performance, thus there is a need for new measures of performance. It seems apparent therefore that there is a need to consider the role of accounting and accounting systems in the management of

organizations both mechanistically, in terms of the relative value of the alternative techniques available, and contextually, in terms of its operation in practice.

In an empirical study of management accounting systems following takeovers or mergers, Jones (1985) identified these systems as being integral to the successful absorption of the companies taken over or merged, but having dysfunctional aspects concerning personal stress levels and resistance. Hedbweg and Jonsson (1978) argue that organizations have fixed lists of behavioral programmes and that the accounting information system filters away conflicts and ambiguities, and therefore decelerate initiative. One way of reducing uncertainty, however, in the decision-making process is to base decisions on past experience.

Dermer (1988), however, argues that the control exercised by managers is limited because of the organization's rules and underlying beliefs and behaviors, and that organizational culture therefore shapes managerial behavior. Gordon and Miller (1976) argue that accounting information systems need to consider the wider environment and take into consideration not just accounting information but also environmental information, organizational attributes and managerial decision-making styles.

Argyris (1990) argues that people are involved in the control process and they use the human theory of control rather than technical theories and this can inhibit the operation of the control process. The role of accounting cannot therefore be considered without a consideration of the people involved in the control process and the effects of accounting systems on their behavior, and vice versa. In large organizations the management of the business is usually separated from its ownership and therefore control has devolved from the owners of the business to its managers.

Williamson (1970) considers that this hinders its control and decision-making processes and leads to internal inefficiencies. It also raises the question of executive remuneration and its link to performance. The executive remuneration system needs to motivate individual managers and provide a means of recognizing and rewarding individual performance. At the same time it is essential that the system also provides a means of ensuring that this individual performance is directed towards optimizing organizational performance, and hence returns to the owners of the business. The divorce of ownership from control places the control systems in the hands of managers and has led to many of the problems discussed. One factor of importance to all organizations therefore, which comes from its control system, is the factor of performance evaluation.

To evaluate performance it is necessary to measure performance and Churchman (1967) states that measurement needs the following components: language to express

results; specification of objects to which the results will apply; standardization for transferability between organizations or over time; and accuracy and control to permit evaluation. Accounting information has a role to play in the evaluation of performance but Govindarajan (1984) suggests that a strong fit between environmental uncertainty and performance evaluation style is related with higher business unit performance and the higher the level of environmental uncertainty, the more subjective will be the approach to evaluation. Long ago Ridgway (1956) considered the dysfunctional aspects of performance measurement and suggested that the use of purely quantitative measures of performance led to undesirable consequences for organizational performance.

2.1.6 Responsibility and Reporting

In an organized organization reporting on the various activities should be part of the control procedure. This is not necessary only for the statutory needs but it is also needed in order to inform the executives, owners and investors what has been achieved and through which manner. Therefore reporting is partly concerned about the responsibility or accountability of the organization internally and externally and is concerned with performance in the short past and in the short future.

Beaver (1989) has identified some changing trends in reporting and emphasizes on the rapid growth in reporting requirements and changes in existing requirements, with less focus on earnings and more on disclosure. He claims that there has been a change from an economic view of income to an informational perspective with a recognition of social implications of an organization's activities.

Eccles (1991) states that there has been a shift from treating financial figures as the foundation of performance measurement to treating them as part of a broader range of measures. His warning however is that this shift in reporting requirements needs a new information architecture and also that there is danger in publishing enormous information as this might help competitors.

Lee and Parker (1979) and Aryana (1979) follow the development of financial reporting and view the changes which have taken place as being due to the influences of various groups rather than the legislative framework, which they consider to be reactive rather than prescriptive.

McDonald and Puxty (1979), on the other hand, take a more social position and state that companies are no longer the instruments of shareholders alone but exist within society and so therefore have responsibilities towards all participants. Recognition of the rights of all stakeholders and the duty of a business to be accountable in this wider context

and the economic view of accountability only to owners has been subject to debate to any considerable extent.

The demand to recognize that people are involved in the reporting and accounting processes as well as in the administration and running of organizations is explored by Hopwood (1974) who is concerned with the behavioral implications of accounting for control and for performance evaluation, and states that accounting systems are just one way of processing information. He argues that while accounting data is used for the evaluation of performance, different approaches can have different effects and lead to different conclusion being drawn. He also argues that budgetary targets can lead to a satisfying tendency and that controls can lead to defensive behavior, whereas participation can lead to greater satisfaction and increased performance, and social factors can influence behavior as much as organizational rules. His view therefore is that employees are very heavily involved in the control and reporting processes and that these processes cannot be studied other than within this context.

While enterprises are organizations with multiple complexities because of the human element of their composition, and this inevitably imposes constraints on their optimization of behavior, it is nevertheless still a fact that organizations, as businesses, continue to exist and function and that therefore there remains a need to account for their behavior, evaluate their performance and report on it. In order to evaluate performance it is mandatory and important to define the determinants of good performance and the use of performance indicators.

Oakland (1989) states that to be useful a performance indicator must be measurable, relevant and important to the organization's performance. Such indicators must also be meaningful to anyone seeking to evaluate performance and the cost of obtaining the information must not outweigh its value. Brewster (1994) makes the point that it is not a simple process to identify good performance indicators and that a comparative measure against the performance of other organizations can give misleading signals and cause resources to be focused and allocated on the wrong things.

A different perspective on performance evaluation has been proposed by Kaplan and Norton (1992) with the development of their balanced scorecard approach. They argue that traditional measurement systems in an organization are based on the finance function and so have a control bias but the balanced scorecard puts strategy and vision at the center. They identify four components of the balanced scorecard, each of equal importance, and each having associated goals and measures. The four components are: financial perspective - how does the firm look to shareholders; customer perspective - how do customers

perceive the firm; internal business perspective - what must the firm excel at; and innovation and learning perspective - can the firm continue to improve and create value. In a later work they continue to argue forcibly that measurement is an integral part of strategy, stating: "Today's managers recognize the impact that measures have on performance. But they rarely think of measurement as an essential part of their strategy. For example, executives may introduce new strategies and innovative operating processes intended to achieve breakthrough performance, then continue to use the same short-term financial indicators they have used for decades, measures like return on investment, sales growth, and operating income" (Kaplan and Norton, 1993, p. 135).

They maintain that the balanced scorecard is a way of evaluating performance which recognizes all the factors affecting performance and it is certainly true that an external perspective, in the shape of customers, is included in this framework which is sadly lacking from Rappaport's (1986) shareholder value analysis.

A concern with a wider view of company performance is taken by some writers, however, who evince concern with the social performance of a business, as a member of society at large. This concern was stated by Ackerman (1975) who argued that big business was recognizing the need to adapt to a new social climate of community accountability but that the orientation of business to financial results was inhibiting social responsiveness. Gray *et al.* (1987) challenge the traditional role of accounting in reporting results and consider that, rather than an ownership approach to accountability, a stakeholder approach, recognizing the wide stakeholder community, is needed.

While these writers consider, by implication, that measuring social performance is important without giving reasons for believing so, Solomons (1974) considers the reasons for measuring objectively the social performance of a business and suggests that while one reason is to aid rational decision making another reason is of a defensive nature. Gray *et al.* (1987) consider social reporting in terms of responsibility and accountability and distinguish between the internal needs of a business, catered for by management accounting, and the external needs, which are addressed for shareholders by financial reporting but largely ignored for other stakeholder interests.

The evaluation of performance is partly concerned with the measurement of performance and partly with the reporting of that performance, and with the greater importance being given to social accountability the changing reporting needs of an organization are also being recognized. Thus Birnbeq (1980) states that accounting is attempting to supply various diverse groups, with different needs for information, and that there is a need for several distinct types of accounting to perform such a function. Similarly

Gray (1992) considers the limitations of the traditional economic base for accounting and questions some of its premises such as: the desirability of growth; the existence of rational economic man; the exclusion of altruism; and the ignoring of the way in which wealth is distributed. He argues that there is a need for a new paradigm with the environment being considered as part of the firm rather than as an externality and with sustainability and the use of primary resources being given increased weighting. Rubenstein (1992) goes further and argues that there is a need for a new social contract between a business and the stakeholders to which it is accountable, and a business mission which recognizes that some things go beyond accounting.

Different perspectives therefore exist concerning the extent of disclosure of performance data, the need for reporting and the framework in which such reporting takes place. These differing perspectives, however, all evaluate practice from a particular viewpoint rather than from the multiple perspective stance of addressing the needs of multiple groups of stakeholders. There is recognition that these different groups require different information and that this poses a problem for accounting and for reporting, but little consideration has been given to an analysis of this problem and ways of its resolution. The various suggestions noted regarding different methods of accounting all seek to satisfy one viewpoint and perceived need at the expense of others.

The way in which a business performs in terms of its ethical behavior and identified place in society as a whole is determined by its relationship with its stakeholder community. It is also to some extent determined by, as well as to some extent determining, the culture of the organization. Kotter and Heskett (1992) consider corporate culture and show how this can lead to good business performance but also to bad business performance and a lack of ability to change to match changing environmental conditions. They consider that effective leadership is crucial to success. Business performance therefore is dependent not only on such factors as the accounting systems and behavioral aspects of organizational behavior but also more crucially on the planning aspects of organizational behavior, and this is the role of strategic management.

2.1.7 The Major Functions Of Accounting Information

In our days all organizations regardless their size has some kind of accounting system. By providing very valuable information accounting systems assist executives in handling various complex situations by imposing a set of operating procedures. This attribute has constituted accounting as a major control system. The author's personal practitioner experience/view here is that a major weakness which derives from the

imposition of operating procedures and is the reported desired results made by the inventive employees. Instead to behave in certain way for the benefit of organization employees just manipulate the system gaining personal benefits.

Accounting information assists manager's organizational control in three ways: attention directing, problem solving and scorecard keeping, Simon *et al.* (1954). Control includes all the above functions.

The purpose of this section is to further analyze the three abovementioned functions and their integration to performance evaluation. Attention should be provided to the procedures being controlled when the outcomes are not expected. Accounting gives information for problem solving either proactive or reactive. As a scorecard keeping tool provides information for the organization as a whole or for individual employees in meeting predetermined performance targets. Performance management of managers or organizations relies heavily on accounting-based measures such as profit, return on investment (ROI), residual income or value added.

Attention directing

The base for trying to implement an accounting based control system is cost calculation. Additional systems also required for integration of information concerning other vital areas of the enterprise such as production, sales, maintenance, etc. The main component of the control process most of the times is budgeting. The two functions of accounting information systems, the attention directing and the scorecard keeping rely heavily on budgeting. The first is the development of action plans translated in financial terms and the second is the monitoring of the respective activities to accomplish these plans.

Emanuel *et al.* (1990) describe budgeting as a multipurpose management tool in an organization. Besides contributing in great extent to decision making budgets most of the times have the following attributes:

- Authorize actions
- Assist in forecasting, planning and communication
- Coordinate and communicate corporate policies
- Motivate organizational members
- Evaluate and control performance

From the above the four purposes serve as attention directing and the fifth one serves as scorecard keeping. The weight of each one of the above purposes will depend on the organization which implements them.

The authority of budgets

Most of times spending limits are set in order to control the actions of subordinates. The purpose for controlling people with simple instruments like budgets could be limited by their attempts to change the control that is being sought. Drucker (1964) suggests that there is better control when individual controls are reduced. Also there is a tension of what is feasible (lower levels) and what is desirable (higher levels) and usually this exists in all budgeting systems.

Planning and communication

These are the major functions of a budget. There are a lot of interesting issues on these two actions and are presented extensively (Collier, 2003; Drury, 2000). The first step in preparing a budget is the forecasting of future actions. Issues like changes in economic activity, change in prices, launching of new products have to be seriously considered. Each one different section of the enterprise must prepare its own plans and then all sections have to be consolidated into organizational budget which plays the major role in balancing different functions, like production and sales, production and purchases of raw materials, and so on. Communication of information across departments in a top down or bottom up approach is a basic assumption and this involves negotiation and bargaining. Fisher *et al.* (2006) report that when superiors and subordinates expect future budget negotiations, they are more likely to reach agreement on a budget and subordinate performance is higher; also once a particular superior and subordinate reached agreement, they were more likely to continue to reach agreement in future periods.

Most accounting texts suggest that budgets should follow the organizational structure of responsibility.

Performance evaluation and motivation

When the final budget version is approved and distributed to all departments then information on the outcomes should be gathered. Thus some feedback control is necessary. In case the results are not the ones expected some action is required to remedy the situation. Performance evaluation is achieved through comparison between actual results and planned targets. When quantitative targets are settled performance is better and can be evaluated easier (Tosi, 1975). Lock (1968) advises that managers better set realistic and feasible budget targets so individuals are able to attain instead of setting much higher targets and people achieve worst results. Argyris (1952) has started an investigation on

human behavior and continued by Hofstede (1968). The main points made by Hofstede (1968) are: Participation in budget preparation makes the budget easier to accept, improves communication but also could bias the budget. Personal, cultural and organizational characteristics affect the setting and accomplishment of budget targets. Motivation is achieved only when the managers are fully responsible for the respective budget. Also managers might influence the budget figures (Schiff and Lewin, 1970) more than the budget influences them (Argyris, 1952); this is more likely when plans are connected with remuneration. Also when it comes to sales and costs executives are less optimistic with sales figures and more optimistic when it comes to costs. Lowe and Shaw (1968) and Otley (1978) state that biased figures do not mean easier targets, for example if current figures are poor, executives might believe future performance will be improved and promise better results. Thus they will continue to be employed and try to present alternative solutions.

Achieving a set target it is certainly a satisfaction for the individual involved in this process and certainly in most times the main reason is the reward expected for this achievement. Therefore when designing the budget based incentives should be designed in a manner that the company's objectives and the individual's behavior are in line (Hopwood, 1973). Also some times good performance and budget target achievement do not necessarily match and there organizations where control and reward for performance is not accomplished by such control. In such circumstances accounting measures play an important role.

Clarke, criticizes the budgeting process, as traditionally practised, and describes it simply as an exercise in justifying the increase and decrease in the previous year's spending. As a result, companies are better off without budgets, especially since budgets can also create a climate of "going by the book" and contribute to a "control by constraint" mechanism. This would, in turn, cease an individual's creativity and innovativeness (Clarke, 2001).

Problem Solving

As already mentioned previously, financial accounting is concerned with external reporting for formal and legal purposes while management accounting is concerned with internal reporting for planning and decision purposes or in other words problem solving. Management accounting provides various techniques and information for long and short term decisions on firms' actions and especially on product costs, elements which are important for the control process.

Before the specific techniques are described, some limitations of the models have to be mentioned. First, many of the techniques are based on the sequential model of: setting objectives, developing plans, measuring the achievement, monitoring the deviations from plans, implementing corrective actions (Otley and Berry, 1980; Otley, 1987). The weak areas in this sequence are: some models do not give equal weight to all above stages and rather focus on implementation of plans and monitor the respective deviations. Also setting of objectives is usually considered with out any problems and without taking into consideration individual goals or organizational micro politics. Second, most of management accounting literature is focused to the internal part of the organization without giving any consideration to external environment even there is a recognition through some strategic management accounting approaches that external environment is important (Dixon, 1998; Lord, 1996). Third, most of the predictive models are connected with economic theories which have as a core objective the profit maximization. This is not always the main reason why people enter into the enterprises, because many times there are other motives as well, such as lifestyle, emotional reasons, etc. The management accounting techniques for control and problem solving are divided in two categories those for short term decisions and those for long term decisions. A short reference in both categories follows.

Techniques for short term decisions – Mainly executives are interested in changes in financial results, therefore there have been developed some techniques to analyze profitability for different activities of the firm. Cost structure, marginal costing and cost-volume-profit (CVP) analysis are the most representative techniques in this category. The main characteristic of this approach is that the classification of fixed and variable costs vary depending upon the time horizon of the decision in question. In the long term most costs become variable while in the short term most costs are fixed. Therefore time length is an important factor for this kind of cost analysis. Also another important issue is the contribution per unit, which is the difference of selling price minus the variable production cost, which in aggregate first covers fixed costs and then provides profit. CVP is claimed to be one of the leading tools that help executives in planning and decision making. CVP helps administrators to understand the interrelationship between the quantity sold, cost, selling price and profit. However, because of its limiting assumptions, some managers are of the opinion that the tool may have very little use in practice (Garrison and Noreen, 2003; Hansen and Mowen, 2002).

Goldratt (1984) presents a framework for measuring the contribution per unit of

limiting resources. Also in case there is an ability to choose between make and buy, the contribution approach helps executives to decide what approach to follow. Simply the items which have to be compared here is the external price for buying the product and the variable costs of making the product internally. The contribution technique also helps in pricing decisions and a lower price is acceptable assuming variable costs are covered.

Some academics reported that due to many changes in the industrial world the usefulness of standard costing and variance analysis was diminishing. In the past, standard costing was one of the major tools for planning, control and performance evaluation, additionally was the main tool for costing (Drury *et al.*, 1993; Lucas, 1997). Lately, has received some criticisms for dysfunctional behaviour with currently developed management techniques. For example, a material price variance may encourage the purchasing manager to buy in bulk (to take advantage of discounts) which would subsequently result in high inventory holding costs. This action is inconsistent with the JIT philosophy (Drury, 1999; Hansen and Mowen, 2002).

Techniques for long term decisions – One major difference between short-term and long term decisions is the time value of money and the anticipated benefits that investments return over some period. Investment appraisal techniques using good predictive models are the usual tools for these cases and also sensitivity analyses are necessary to ensure and correct variations in projections. The most usual techniques for long term investments are: net present value (NPV), payback and accounting rate of return (ARR). The theoretical basis for the above techniques, which derives from the objective of the firm and is the maximization of shareholders value, is the assumption of incremental cash flows generated in the future, thus the maximization of NPV of future cash flows. The basic rule of the NPV approach is for a project or investment to be acceptable is to have a positive NPV value at a proper discount rate. Thus we derive in the calculation of the internal rate of return (IRR), and is the discount rate where the NPV becomes zero. It is upon management's discretion to set a minimum acceptable IRR level. The basic idea for estimating future discount rates relies on both the cost of capital and the specific risk associated with the investment (Otley and Berry, 1980; Otley, 1987).

The calculation of weighted average cost of capital (WACC) could be used to present a discount factor for all capital appraisals. Since the discount factor designates a positive or negative NPV it is crucial the calculation of this factor to be accurate and equally important as well is the estimation of inflation rates. Haka *et al.* (1985) present evidence where the use of these sophisticated techniques and increased earnings per share

are not significantly related. Indeed some studies have noted an inverse relation between these modern evaluation techniques and the respective performance. Some times this is due to fact that poorly performing firms utilize sophisticated evaluation techniques trying to improve their performance (Northcott, 1991; 1992).

One simple method and often used for calculating cost of capital and cost of cash flows is the less sophisticated method of payback, which is the time the initial investment takes to be returned by the cash flows generated by the project. It could be used in combination with other techniques as well. Regarding the techniques mentioned above there is belief that the discounting techniques are superior but not frequently used. Pike (1983; 1988) presents evidence of the increasing use of discounting techniques.

Another appraisal method is the accounting rate of return (ARR) which is calculated as the ratio of profit generated by the initial or average investment. This method does not use discounted cash flows and is considered of less importance of NPV because it uses profit flows which could be presented differently by simply changing accounting policies and methods. Also it creates problems in asset valuation. This method generates similar results with the return on capital employed (ROCE) method which is usually used to evaluate realized results (Otley and Berry, 1980; Otley, 1987).

All above techniques have different aims and each one can be implemented accordingly. When managers' performance is connected with the financial results manipulation and biasing of cash flows is more likely to occur and the remedy in this case is to try to minimize it by frequent audits before issuing final figures and after having the final results.

Techniques for frequent control – One basic element in decision making and control is cost information. For example, in order to have a correct inventory valuation the total cost of each product is necessary. The absorption costing technique distributes all identified costs to the cost item, then it distributes the indirect costs among the units produced thus a total cost per unit could be identified (Otley and Berry, 1980; Otley, 1987). One major difficulty here is how to arbitrarily distribute the indirect costs and this creates problems. Johnson and Kaplan (1991) take issues like the share of indirect costs and make a critique of the relevance of management accounting. Variable cost information is useful for short-term decisions while full cost information is useful for long term decisions. Another technique for calculating the product cost, product or service cost and which developed in the recent years is the activity base costing (ABC) which has developed to activity based management (ABM). ABC allocates the costs related for the

respective transformation of the product or service in the respective “cost drivers”. There is an argument that in this way allocating costs is more realistic although there are some arbitrary allocations (Johnson and Kaplan, 1991). ABC is widely adopted by practitioners in Western enterprises because it contributes in more accurate overhead allocations. The difference with the traditional cost methods is that ABC identifies all work activities and costs which are connected with the creation of product or service. In traditional costing methods cost allocations are usually based on labour or machine hours resulting in various cost distortions which affect the relationship between indirect costs and individual products (Scapens, 1991).

The above methods are the basis for the benefits and drawbacks of management accounting and certainly could be utilized in order to identify and provide solutions for various problems of daily practice.

Scorecard Keeping

The main reason for budgets being so popular is because they are used as control tools when managers are responsible for costs. When actual results are compared in detail with the budget it helps to find problems. One familiar measurement is profit and those who are in charge of the organization are responsible for the superior performance of the organization.

Performance evaluation is an important function of management accounting, particularly in companies that have a divisionalised organisational structure. The most often cited methods used to measure the divisional performance indicated in common management accounting textbooks are the return on investment (ROI), the residual income (RI) and the economic value added (EVA). Lately, however, there have been suggestions that relying on accounting related measures is not enough. Proponents of the BSC have argued that non-financial measures should also be measured. Subsequently, many companies are currently focusing on both accounting and non-accounting related measures (Sulaiman *et al.*, 2004).

Divisionalized organizations are perfectly fit here and divisional managers who are familiar with the local environmental conditions are fully responsible for achieving targets set. The most common set of measuring performance are the return on investment (ROI) or residual income (RI). ROI is a form on capital employed, which compares income generated with the operational assets utilized to generate that income. Profit is calculate before tax and interest because tax is an appropriation of profit made from the use of the investment, and the introduction of interest charges introduces the effect on financing

decisions into an appraisal of operational performance. It is expressed in percentage terms (CIMA, 1996, pp.67-68). RI is the calculation of pretax profits less an imputed interest charge for invested capital (ibid, p.101). Managers are obliged to achieve specific assigned targets and the most familiar motive is a bonus at the end of the measurement period. A close variant of RI is the economic value added EVA (Stewart, 1994).

Johnson and Kaplan (1987) had criticised that traditional MA tools were too aggregate to be relevant for the planning and controlling needs of the modern enterprise. They suggested methods such as ABC and target costing as more appropriate. Additionally for performance measurement accounting methods were no longer suggested. Non-financial measures had to be employed as well, thus the method of balanced scorecard (BSC) was introduced, which combines financial and non-financial information.

Target costing is a method used during product and process design that involves estimating a cost calculated by subtracting a desired profit margin from an estimated (or market-based) price to arrive at a desired production, engineering, or marketing cost. The product is then designed to meet that cost (Guilding *et al.*, 2000). Target costing is an elaborate cost management technique, which in its fully-developed form, requires the adoption of an intense and ongoing cost management discipline across all aspects of the life cycle of a product, including product design, manufacturing process design, manufacturing activities and after sales support. "However, some of the practices associated with target costing, such as functional analysis or the market-driven approach to cost management, may already have been adopted successfully by some organizations and now be part of the accepted practices" (Langfield-Smith, 2008, p.224).

Balance scorecard (BSC - mix of financial and non-financial measures). The Balanced Scorecard measures a company's performance through a balance of four perspectives: financial, customers, internal business processes, and learning and growth. These measurements include the traditional financial measurement of past transactions, but they also give a measurement strategy for future operations. The business environment has changed from industrial based to an information based one. This change has brought the focus from tangible assets to intangible ones. No longer can operations be evaluated at a later time, as it is done now through the analysis of financial data. Operations must be conducted in real-time, which means they must operate without boundaries of inter-company segment or even the supply chain (Kaplan and Norton, 1996). Atkinson *et al.* (1997) argue that the BSC may be regarded as one of the most significant developments in management accounting.

Emmanuel *et al.* (1990) states that trying to implement performance measures is

not a straightforward task, for the following main reasons. Action is a cooperative issue in organizations and measuring individual performance may lead to dysfunctional results because these individuals might try to outperform themselves having a negative effect in the organization as a whole. Measurement of single performance measures is not easy and effective because organizations have many objectives and purposes. Some issues of performance like employee morale and quality can not be quantified. Sometimes the effort does not reflect the respective results especially when there are unexpected environmental problems.

One of the main problems is that systems do not reward behavior but results, thus managerial behavior is in accordance with the results achievement. Dearden (1962) reports that managers might not invest in new machinery simply because the increase of assets would decrease the ROI targets and performance. This would be negative in terms of production and competitive advantage. There are some research findings on participation in the budget procedure and performance evaluation. Kenis (1979) states that there is better budget setting when more individuals participate and there is no relation between the participation and rest of measures of work performance.

There is also evidence that there are weak relations between budgetary characteristics and work performance which imply that overall work performance might not be affected by quantitative evaluation. This is due lack of managerial control in some important variables regardless their participation in the budget process (Ivanevitch, 1976; Milani, 1975; Steers, 1975). Performance evaluation could be measured in different ways. Large decentralized organizations mostly implement administrative controls instead of personal controls. Budgeting is usually preferred and lower level managers encouraged to participate in the budget process (Merchant, 1981). Hopewood (1972) has divided cost center managers in three evaluation categories. In all cases performance is related to rewards. First, is the budget constrained approach which is focused on short term achievement of the budget. Second, is the profit conscious approach which is focused on the general effectiveness of the organization's operations. This approach is more flexible than the previous one and additional expenses are justified when the respective profit is generated. Third, is the non accounting approach where budgetary data is used but measures of managerial performance are irrelevant to accounting. The study reports that those who implemented the budget constrained approach had more stress and their colleague relations were poor. Those who were evaluated according to the non accounting approach did not give enough attention to costs. Otley (1978) studied in a similar way like Hopewood the independent profit centers. He reports that the evaluation style had a small

effect on work stress or data manipulation, also that the best performing managers were those who were evaluated under the flexible profit conscious approach. So budgetary information in performance evaluation should be used with care otherwise some side effects could appear. Some academics have underlined the advantages to preparing budgets. Budgets aid planning and facilitate interdepartmental communication and coordination. Also budgeting provides means for companies to allocate scarce resources more efficiently. Additionally, budgets may also be used as a tool to evaluate the divisional or managerial performance (Garrison and Noreen, 2003; Hansen and Mowen, 2002; Hilton, 2002).

Accounting measures provide better performance results when the organization is operating in a stable environment (Hirst, 1981). This view is also supported by Govindarajan (1984) who reports that evaluation procedures should be more subjective when operating in unstable environmental conditions. These two studies focus on two main issues which have to be attained. The effect by the external environment is subject to accounting information use by the managers and the related rewards. There is a strong link between budgetary measures and managerial behavior and desired results which in most times is weak especially in an uncertain environment. This relation should be considered when reward systems are designed and should be some tolerance for circumstantial failure.

Managerial individual cognitive style also affect the style and information supplied (Macintosh, 1985). Also another issue of individual difference is the degree of acceptance of personal responsibility. There are managers who pretend that circumstances are outside of their control, performing best when involving in budget setting while there are others who accept events as a result of their own behavior performing best when targets are imposed.

All the aforementioned issues referring on performance evaluation underline the difficulties of finding appropriate measures and evaluating individuals will have an effect on performance. Also the external environment and the individual differences are important factors when designing systems. What is suitable for one organization may not be appropriate for another, and in many circumstances even different people in the same situations generate different results.

2.1.8 The Framework And The Role Of Management Accounting

Wilson and Chua (1993), trying to define management accounting they describe it as a framework that: “encompasses techniques and processes that are intended to provide

financial and non-financial information to people within an organization to make better decisions and thereby achieve organizational control and enhance organizational effectiveness" (ibid, 1993, p.17).

Management accounting is concerned with the provisions and use of accounting information to managers within organizations, to provide them with the basis making informed business decisions that would allow them to be better equipped in their management and control functions. Unlike financial accountancy information (which, for public companies, is public information), management accounting information is used within an organization (typically for decision-making) and is usually confidential and its access available only to a select few. According to the Chartered Institute of Management Accountants (CIMA) official terminology, Management Accounting is "the process of identification, measurement, 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. Management accounting also comprises the preparation of financial reports for non management groups such as shareholders, creditors, regulatory agencies and tax authorities" (CIMA, 2005-2008).

The American Institute of Certified Public Accountants (AICPA) states that management accounting practice extends to the following three areas:

- Strategic Management—Advancing the role of the management accountant as a strategic partner in the organization.
- Performance Management - Developing the practice of business decision-making and managing the performance of the organization.
- Risk Management - Contributing to frameworks and practices for identifying, measuring, managing and reporting risks to the achievement of the objectives of the organization. (AICPA, 2006-2008).

The Institute of Certified Management Accountants (ICMA), state "A management accountant applies his or her professional knowledge and skill in the preparation and presentation of financial and other decision oriented information in such a way as to assist management in the formulation of policies and in the planning and control of the operation of the undertaking. Management Accountants therefore are seen as the "value-creators" amongst the accountants. They are much more interested in forward looking and taking decisions that will affect the future of the organization, than in the historical recording and compliance (scorekeeping) aspects of the profession. Management accounting knowledge and experience can therefore be obtained from varied fields and functions within an

organization, such as information management, treasury, efficiency auditing, marketing, valuation, pricing, logistics, etc." (ICMA, 2005).

Johnson and Kaplan (1987) trying to describe the problems between theory and practice back in 1980's they underlined the following:

- Conventional management accounting does not meet the needs of today's manufacturing and competitive environment.
- Traditional product costing systems provide misleading information for decision-making purposes.
- 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 (Drury, 1996, p.834). Drury in his textbook makes a reference to Kaplan where Kaplan had already noted that practice and textbooks differed mainly in the following:

- a) A delay in theoretical developments being applied in practice.
- b) A lack of understanding of theory by practitioners.
- c) Theory fails to address the reality faced by practitioners

Some of c) was in part explained by behavioral issues but Kaplan wrote from an economic perspective (Kaplan 1984; Drury 2000). Before these concerns and in the period between 1950 and 1975 two academic camps emerged: The economic and the behavioral perspectives.

Economic Perspective

- Techniques and information system design.
- Functional utility and relationships based at the level of the individual e.g. Principal & Agent

Behavioral Perspective

- Relate to the motivational impact of using 'techniques and information systems'.

Also Scapens (1983) wrote "the quest for complexity simply as a means of better representing reality will not necessarily provide 'ideal' methods of management accounting." Drury, (1996, p.855).

The Management Accountant has to recognize:

- the highly competitive environment and an advanced technological environment

- the notion of organizational control and elements of control, use and value of feed forward and feedback controls.

The role played / to be played by the accountant remains that of helping people within organizations achieve organizational control and effectiveness through appreciating the gap between theory and practice and the need for information control systems to be used for:

- performance measurement (divisions, divisional managers, corporate) and
- strategic decisions on pricing, product mix, process technology, and product design and product costing.

Byrne and Pierce (2006) in a collection of literature regarding the management accountant's role present the following:

“The role of MA has been receiving increasing attention in the accounting literature (Burns and Baldvinsdottir, 2005; Pierce and O’Dea, 2003; Chenhall and Langfield-Smith, 1998a). There are number of studies that examine dimensions to MA roles in organizations e.g. *‘Bean-counter’* and *Controller* (Granlund and Lukka, 1998); *Controller Independence and Involvement* (Sathe, 1982, 1983); *Scorekeeping, Attention Directing and Problem Solving* (Simon *et al.*, 1954); *Bookkeeper and Service aid* (Hopper, 1980); and *Business Advocate and Corporate Policeman* (Jablonsky *et al.*, 1993). Similarly, other studies acknowledge the continued management accounting and control duties and recognize the additional, emerging business-focused role e.g. the *Business Partner* (see Pierce and O’Dea, 2003; Siegel, 2000; Siegel and Sorensen, 1999; Siegel, 1996) and the *Hybrid Accountant* and the *Business Analyst* (Burns and Baldvinsdottir, 2005; Burns *et al.*, 1999). The professional accountancy bodies have similarly highlighted a role in transition, having changed their publication titles both from *Management Accounting* to *Financial Management* in the UK and *Strategic Finance* in the US.”

Enterprise resource planning (ERP) systems have been widely implemented in recent years by the majority of large companies. Scapens and Jazayeri (2003) report change in the role of management accountants due to that use, even the ERP is not the driver for those changes. More specifically there were changes in, first, the elimination of routine jobs, second, line managers with accounting knowledge, third, more forward looking information, fourth, a wider role for the management accountants.

Granlund and Malmi (2002) in their study on practical consequences of ERPs on managerial accounting and control the report that ERPs projects have led to relatively small changes in management accounting and control procedures. Also, in most of the cases, advanced management accounting techniques—and many of the traditional ones too (e.g. annual budgeting)—are operated in separate systems. For management accountants, ERPs have in some cases left more time for analysis instead of routine tasks.

2.1.9 Management Accounting Control Systems

Management accounting control systems have a role to play in achieving organizational control by helping to:

- define objectives and feasible regions or activity,
- measure inputs, transformation processes, outputs,
- identify the effects of alternative organizational strategies (having a predictive model).

Control is easiest to achieve when

- objectives are clear,
- outputs are relatively easy to measure,
- the effects of interventions are known,
- the activity to be controlled is repetitive

It is familiar to all who work in modern enterprises worldwide that management accounting systems are the paramount controls in most organizations (Otley, 1984, 1986). They are the main management tools which assist executives to govern any type of business entity mainly for the following reasons:

First, all organizations need to gather and express the outcomes of various activities using a common measure, which in this case is monetary.

Second, profitability and liquidity are two essential factors for the viability of any organization and financial measures represent both terms usually monitored by the shareholders. Therefore it is important that executives monitor financial and non financial performance.

Third, financial measures are used as a common base for comparison and decision making which influence financial performance.

Fourth, financial results give more autonomy to executives in order to consider the appropriate actions in order to achieve the planned targets. Finally, a financial result is the main criterion to declare whether taken actions gave additional value to organization. Since most organizations cannot be controlled centrally and there is a need for individual firm monitoring this is possible with the creation of responsibility centers. Responsibility center could be a unit or a firm where an executive has full responsibility of the firm's performance.

There are four categories of responsibility centers:

Cost or Expense Centers, where executives are usually responsible for costs under their control. There are two categories of cost centers: standard cost centers and discretionary cost centers. In standard cost centers the input necessary to produce each unit

of output can be defined and output can be measured. The idea of control is to compare what should have been produced with what was actually produced. In discretionary expense centers results cannot be measured financially and there are no clearly observable relationships between resources consumed and results achieved. The idea of control is to ensure that purposes assigned to each center have been successfully fulfilled. Examples of discretionary expense centers include the advertising department or the research and development department. One difficult area of management control is to define effectiveness of discretionary cost centers.

Revenue Centers, where managers are responsible only for financial results and mainly in creating sales revenues. Such an example is regional sales managers who are responsible for their district. Revenue center executives are not responsible for costs and services which they sell but only for sales force expenses, bonuses and commissions.

Profit Centers, where executives are responsible for both revenues and costs. In profit centers executives have the autonomy to influence production and sales, such as choose selling prices, choose product-mix and volume decisions, select markets and suppliers.

Investment Centers, where executives are accountable for revenues, costs, and also can decide for working capital and capital investments. Return on investment (ROI) and economic value added (EVA) are two representative measurement indicators for investment centers. These indicators rely on revenues, costs and assets involved and thus increase or decrease reflect to the managers ability to create or not profits and to administrate profitably on the investment center. This category represents the highest type of managerial autonomy and include as a whole operating business units, groups and divisions.

2.1.10 The Nature Of Management Accounting Control Systems

Management accounting control systems have two faces. The first is the formal planning processes such as long-term planning and budgeting, and they are used in order to set performance expectations and eventually to evaluate performance. The second, as already mentioned above, is responsibility accounting which deals with the measurement of results of responsibility centers. It deals with the gathering of costs and revenues for each separate responsibility center and comparison with the predetermined performance target (Otley, 2003).

The usual process includes performance target setting, performance measuring, performance comparison against plans, variance analysis, and action taking in case of

deviations from budgets and normally consists from rewards or punishments. For profit or investment centers typical performance measures are financial targets such as return on investment (ROI) or economic value added (EVA) and for cost centers performance targets are defined in terms of costs such cost per unit of output, etc. (Otley 1984, 1986).

In responsibility accounting a usual procedure to inform executives about their performance measurements is management reporting. Performance reports are issued periodically representing time periods such as month, quarter, six month or half year, year and in most organizations are compared to respective budget periods. Then managers are hold accountable for any favorable or unfavorable variances and in significant fluctuations some corrective actions are required. Also based on these variances managers receive their rewards or punishments.

As already mentioned, Simon *et al.* (1954) presented accounting as serving three main functions: attention directing, problem solving and scorecard keeping. All these functions serve control. Attention directing refers to the procedure being controlled when the results are not according to expectations. Problem solving refers to the provision of data either proactive or reactive. Scorecard keeping refers to the examination of individual and organizational goal achievement.

2.1.11 The Context of Interpretive Theory

Daft and Weick (1984) note that any study of organizations is rooted in fundamental, often unarticulated assumptions about organizations, their structures, and their functions. An interpretive view of the firm is based on the research of Cyert and March (1963) and others of the Carnegie School (Dearbom and Simon, 1958; March and Simon, 1958) who were the pioneers in theorizing concerning non-rational behaviors that occur within firms. These academics argue that the capacity of executives to collect and process information, as well as to predict the consequences of alternatives considered, is limited. While managers intend to act rationally, their rationality is bounded (March and Simon, 1958) by a variety of forces not considered in neoclassical economic theory, including intentions to avoid uncertainty and goal satisfying (achieving acceptable levels of performance instead of optimal levels). Cyert and March's (1963) behavioral theory challenged other assumptions of classical economic theory. First, economists considered the firm as a black box directed toward a single organizational goal of profit maximization. Cyert and March (1963), however, viewed the firm as "a coalition of participants with disparate demands, changing foci of attention, and limited ability to attend to all organizational problems simultaneously" (Ibid, p.50). Firms, therefore, choose multiple,

often conflicting goals. Second, they challenged the economic theory assumption of perfect “knowledge of the probability distribution of future events” and the assumption that knowledge is transferred at no cost among parties (Ibid, p.8).

Built on these foundations, Weick and his colleagues (Weick, 1979; Daft and Weick, 1984) developed an interpretive theory of the firm, which views firms as social systems that must process and interpret uncertain and ambiguous information for action. According to the interpretive theory, manager’s choices are critical to the scanning process (when information is collected), the interpretation process (when information is given meaning), and the strategic action process (which affects firm performance).

In this kind of framework the basic idea is that social practices such as management accounting are not natural phenomena but are socially made and could vary pending on social actors. Automatically, researchers can not generalize and should search for the rules which structure social behavior. This means that social structures are simultaneously a condition and a consequence of social behavior. In order to fit accounting into this framework researchers must analyze current practices and place them in their organizational, social, economic and historical environments. In order to achieve this purpose a holistic orientation is adopted where accounting is a part of a united social system and the attempt is for example to analyze the various parts of it and how these parts make this system unique. From this type of analyses we can derive explanatory theories referring to social structures and thus to social practices such as MAP.

Summarizing, organizational theory has developed the argument that firms are not the black boxes of neoclassical economic theory. Managers’ choices matter. Therefore, organizations are subject to the bounded rational views of individuals, and the choices of executives are especially important. Management accounting as a social behavior needs to be analyzed to understand its various components and practices and their impact on the organization.

2.1.12 The Context Of Contingency Theory

Most organizations have adopted various sets of measures as a mean to monitor performance. At higher levels these measures typically include some financial measures of performance and some other measures of indicators of value changes. Such indicators usually include measures for measuring profits, cash flows, etc. At lower levels include non-financial performance indicators such as market share, growth rates, introduction of new products, product quality, customer satisfaction, personnel development, bad debt ratios, inventory turnover, safety rates, etc. When there is a need for new measures

companies should take into consideration the changing external environment.

Otley (1999) presented a set of five issues which have to be considered when developing a framework for controlling organizational performance.

The first issue refers to organizational objectives for future success and is concerned with definition of goals and goal evaluation from every stakeholder part. The second issue is about the adoption of strategies and plans along with the necessary processes and activities required for a successful implementation and implies to practical issues of business process and operations management. The third issue refers to level of performance goals regarding the two previous issues and is emphasizing more to practices such as benchmarking, etc. The fourth issue is about the rewards and penalties given to all participants achieving the performance targets and is a main responsibility of human resource management function. The fifth issue is about information flows and refers to MIS and management control systems (MCS) and how these related to issues such as the learning organization, employee empowerment and emergent strategy.

In the beginning of eighties, Otley (1984) studied the connection between management accounting and organization theory. One of his major points was that organization theory was not just a solid piece of work but was divided in different parts. For instance some of these parts are: contingency theory, systems theory, organizational and behavioral theory. His survey revealed that the work of management accounting research had as a main purpose: to explain the management accounting practices. One major conclusion was that researchers gave more emphasis to theory rather to empirical results. Also the emphasis of management accounting research based on organizational theory was the same as to one of economic based management accounting research, which both attempt to explain management accounting practice. One of his suggestions was for more qualitative and interpretive research and case studies.

The contingency theory was mentioned above as a part of the organization theory. More emphasis will be given to this framework since this study adopts its major principles in order to attain its aim and objectives and follow Otley's (1984) suggestions for focusing in qualitative, interpretive and empirical results.

Intner and Larker (2001), quote "Contingency theories expanded the managerial planning and control framework by articulating some of the contextual or "contingent" factors influencing the entire organizational control "package" of accounting and non-accounting information systems, organizational design, and other control mechanisms", (Ibid, 2001, p.352).

In this section we'll try to describe management accounting under the prism of

contingency framework which as a basic assumption takes the idea that there is no common accounting system replicated evenly to all organizations in all cases (Emmanuel *et al.*, 1990). In the same study an analytical list of authors is presented with their respective contribution to contingency theory. Specific modes of an accounting system depend on the relevant circumstances where the organization belongs. Gordon and Miller (1976), Hayes (1977), Waterhouse and Tiessen (1978), and Otley (1980), among others conclude that there is no universally applicable system of management accounting and control. The selection of the appropriate systems relies upon the respective business environments where firms belong. The most popular contingent factors are the external environment, technology, competitive strategy and mission, business unit and industry characteristics, knowledge and observability factors (Fisher, 1995).

Emmanuel and Otley (1985) and Emmanuel *et al.* (1990) state that various environmental factors might drive the approach to management control (MC) but they all focus on the accounting techniques that could be utilized in order to accomplish control. Both studies concluded that there is a powerful link between the nature of environment and the level to which a decision is controlled. Referring to MC and contingency theory Burns and Stalker (1961) divide organizations in two categories the mechanistic and the organismic organizations. The former operates in stable conditions with a known task technology and has a bureaucratic structure, the latter operates in more unstable environment with less defined technologies and have a more flexible structure. Also Hannan and Freeman (1997) and Aldrich (1979) recognize the importance of environment and they state that it is the major factor that actually shapes the organization and organizations have to learn how to adapt.

The contingency approach takes as a prerequisite that management accounting systems (MAS) are created in order to help executives to achieve the organization's goals by improving their decisions. The modern contingency theory of management accounting has the narrower scope of defining how specific events or contingencies create the framework of a MAS. A brief historical path of contingency theory would be as follows:

Woodward (1958; 1965) focused on the issue of technology which characterized it as the main contingent variable. Burns and Stalker (1961) focused on the effects of environmental conditions like technological uncertainty on organizational structure. Chandler (1962) added the corporate strategy and Lowrence and Lorch (1967) the market environment.

Burns and Waterhouse (1975) explained how budgeting is controlled by organizational self-independence management centralization and environmental

uncertainty. Hayes (1977) discussed the relation of three major variables and how these variables are the main determinants of MAS: sub-unit interdependence, environmental competition and work method specification. Waterhouse and Tiessen (1978) elaborated more on contingency theory and focused more in MAS differences throughout organizations (contingent variables would create different results depending on the part of organization applied).

Gordon and Miller (1976) present MAS as the main organizational feature providing a representative picture of the organization and how MAS can affect and be affected from various contingencies. Miller (1976) divided firms in three categories based in MAS form in normative terms. These are first, the adaptive type which operates in a competitive environment based on dynamic decision taking with decentralized structure. The second type is the running blind which operates in a competitive environment but with a perceptive style based on entrepreneurial decision taking with central structure. The third is the stagnant type which operates in stable environment based on conservative decision taking and the organizational structure is central. Similar studies are those of Otley (1980) and Alum (1997).

Donaldson (1994) tries to examine whether contingency theory could be applied to small firms and not only to the big ones as it was originally proposed. Kloot (1997) concluded that contingency planning would improve firm's flexibility and adaptability to external threats. Gordon and Chapman (1997) elaborate more on uncertainty which characterized it as intervening variable. Also, Langfield – Smith (1997) makes a revision of previous work on contingency theory and summarizes on the issue where an organization's strategy influences its control system in a contingent manner. Xiao *et al.* (1996) referred to IT influences in MAS, Anderson and Lanen (1999) examined the international competition effects on MAS, and Bhimani (1999) studied the societal differences and their effects on MAS.

Anderson and Lanen (1999) focused on the effects of national culture and competitive strategy on the MAS a major issue of organizational structure.

Brignall (1997) utilized a contingency theory framework to emphasize on the cost system design. Organizations operate as open systems trying to respond to external and internal factors. In relation to management accounting some of the most common internal factors are strategy (Miles and Snow, 1978; Gupta and Govindarajan, 1984; Simons, 1987; Chenhall and Morris, 1995), technology (Khandwala, 1977; Merchant, 1984; Dunk, 1992) and organizational size (Khandwala, 1972; Bruns and Waterhouse, 1975; Merchant, 1981). Some of the most common external factors are external environment (Merchant,

1990; Chapmann, 1997; Hartmann, 2000) and national culture (Hofstede, 1984; Harrison, 1992; O'Connor, 1995).

Environmental uncertainty and hostility are the most commonly investigated variables. Environmental issues are not easy to be predicted and do influence the organizational structure, budgeting and control, performance evaluation and they are connected with open and externally focused financial accounting systems. When the firm operates in a hostile environment then it is important the organization to have formal control and modern accounting (Khandwalla, 1972; Otley, 1978).

Burns and Stalker (1961) in Emmanuel *et al.* (1990) talked about 'mechanistic' vs. 'organic' organizations and their relative 'suitability' to respond to contingent variables in the environment. In stable environments mechanistic organizations could survive but where an organization must cope with high degrees of uncertainty that were caused by unpredictable new tasks created by, say, demands of rapidly changing environment (changes in customer tastes), an organic structure was found to be more appropriate. The more influential independent variables are thought to be environmental uncertainty; technology; size; organizational structure; knowledge and observability factors (Drury, 2000, p.649), the management accounting control system is seen to be a dependent variable i.e. contingent on the independent variables.

The basic layout that describes contingency theory is presented in Figure 2.4.

The procedure presented has an effect on management accounting practice and a final influence in organizational performance measurement (Haldma and Laats, 2002). Contingencies are divided in two major groups, external which include the characteristics of external environment at accounting level and internal which include the characteristics of internal organizational environment. Environmental characteristics influence both the internal features of an organization and its management accounting practice.

For example prices and new products have an effect of strategy choice, organizational structure and cost management and control practice. Some internal contingencies could be information technology, strategy, size, organizational structure, type of organization, etc. Some external contingencies could be the business environment, national culture, the accounting environment, academics, government intervention, etc.

The effectiveness of performance measurement and evaluation is relied on the internal factors and the respective MAS of each organization. Also evaluation results provide some feedback for the MAS. The list of external and internal contingencies along with MAS and performance evaluation measurements cannot be considered exhaustive since not all factors and impacts could be included. Contingency based studies present a

liaison between the utilization of management accounting practice and improved performance.

Figure 2.4: The Contingency theory framework (Source: Hadma and Laats, 2002, p.384)

Figure 2.5: Otley's (1980) contingency theory framework (Source: Ittner and Larker, 2001, p.355)

Otley (1980) presented a contingency theory framework, Figure 2.5, where he suggests that management accounting and control should be considered as an organizational control package consisting of accounting information systems, performance measurement and rewards systems, and organizational design, with the choice and performance consequences of these practices as being a function of the firm's external environment, organizational objectives and strategies. If we extend these ideas then we find the framework of value based management (VBM) which is based on the firm's financial and non-financial value drivers and the feedback from performance of reassessment of strategies, objectives and organizational design and control.

2.2 MAP AND PERFORMANCE MANAGEMENT

The following two sections present the evolution of management accounting and the research context of this study.

2.2.1 Management Accounting Development

The International Federation of Accountants (IFAC, 1998) has divided management accounting practice in four major phases. While MAP evolved through those four phases was influenced theoretically and practically first, by various management and social theories and second, by the continuous increasing needs of practitioners which upgraded its vital role.

Phase 1 - cost determination and financial control (pre 1950)

Prior to 1950, the major concern of managerial accounting practice was cost definition and financial control using various forms of budgeting and cost accounting systems. IFAC describes management accounting before 1950 as a technical activity necessary for the pursuit of organizational objectives. It was mainly oriented towards the determination of product cost. Production technology was relatively simple, with products going through a series of distinct processes. Labor and material costs were easily identifiable and the manufacturing processes were mainly governed by the speed of manual operations. Hence, direct labor provided a natural basis for assigning overheads to individual products. The focus on product costs was supplemented by budgets and the financial control of production processes. The strong position held by Western countries in international markets made their products highly regarded. They could be sold relatively easily, and competition on the basis of either price or quality was relatively low. There was little innovation in products or production processes as existing products sold well and the production processes were well understood. Accordingly, management was concerned primarily with internal matters, especially production capacity. The use of budgeting and

cost accounting technologies was prevalent in this period. However, the dissemination of cost information tended to be slight, and its use for management decision-making poorly exploited (Ashton *et al.*, 1995).

Phase 2 - information for management planning and control (by 1965)

In the 1950s and 1960s the focus of management accounting shifted to the provision of information for planning and control purposes. Simon *et al.* (1954) presented accounting as serving three main functions: attention directing, problem solving and scorecard keeping. All these functions serve control. Attention directing refers to the procedure being controlled when the results are not according to expectations. Problem solving refers to the provision of data either proactive or reactive. Scorecard keeping refers to the examination of individual and organizational goal achievement. Management accounting (MA) is a tool which contributes significantly in the decision process in organizations. This implies that its functions must provide support for the entity to obtain better results than under the conditions of its non-existence. Around the middle 1960s that concerned was changed to the creation of information for management planning and control. In this period comes the work of Anthony (1965) who describes management control as a tool to ensure that organizational resources are used effectively and efficiently in order to achieve the planned objectives. In Stage 2 management accounting is seen by IFAC as a management activity, but in a staff role. It involved staff (management) support to line management through the use of such technologies as decision analysis and responsibility accounting. Management controls were oriented towards manufacturing and internal administration rather than strategic and environmental considerations. Management accounting, as part of a management control system, tended to be reactive, identifying problems and actions only when deviations from the business plan took place (Ashton *et al.*, 1995).

Phase 3 - reduction of resource waste in business processes (by 1985)

The world recession in the 1970s following the oil price shock and the increased global competition in the early 1980s threatened the Western established markets.

The literature on management planning and control frameworks was heavily influenced by contingency theory by defining some of the contextual or “contingent” factors affecting all the entire organizational control “team” of accounting and non-accounting information systems, organizational design, and other control mechanisms (Gordon and Miller, 1976; Hayes, 1977; Waterhouse and Tiessen, 1978; Otley, 1980). Increased competition was accompanied and underpinned by rapid technological development which affected many

aspects of the industrial sector. The use, for example, of robotics and computer-controlled processes improved quality and, in many cases, reduced costs. Also developments in computers, especially the emergence of personal computers, markedly changed the nature and amount of data which could be accessed by managers. Thus the design, maintenance and interpretation of information systems became of considerable importance in effective management (Ashton *et al.*, 1995). The challenge of meeting global competition was met by introducing new management and production techniques, and at the same time controlling costs, often through reduction of waste in resources used in business processes (IFAC, 1998). In many instances this was supported by employee empowerment. In this environment there is a need for management information, and decision making, to be diffused throughout the organization. The challenge for management accountants, as the primary providers of this information, is to ensure through the use of process analysis and cost management technologies that appropriate information is available to support managers and employees at all levels.

In the middle 1980s management accounting changed the emphasis from planning and control to reduction of waste in business processes. This was merely affected by the increasing interest in quality management programs and various accounting methods such as quality cost measurement, process value analysis, activity based costing, and strategic cost management (Cooper and Kaplan, 1991; Shank and Govindarajan, 1994).

Otley (1986) considered that systems designated to serve all purposes are unlikely to be uniformly successful as the MC system requires to be tailored to fit the specific circumstances of the organization for which it will be implemented. The contingency theory of management accounting suggests that there is no universally applicable system of management control but that the choice of appropriate control techniques will depend upon the circumstances surrounding a specific organization (Otley, 1999, p.367).

Phase 4 - creation of value through effective resources use (by 1995)

Anthony (1988) considered that management control (MC) is the way to assure that the strategies are followed and the goals are accomplished. MC includes activities like planning, coordination, communication, assignment, decision and influence on the people that are involved with a view to changing their behaviour. He distinguishes strategic planning and operational control from management control by limiting the purpose of managerial accounting responsibilities and giving more attention to accounting information (Langfield-Smith, 1997; Otley, 1999). Also, management accounting (MA), management accounting systems (MAS), management control systems (MCS), and organizational control (OC) are

terms with similar content and many times are used interchangeably. The first, MA, refers to various practices such as budgeting or product costing, etc., while MAS refers to the systematic use of MA to achieve some goal, MCS is a wider term which includes MAS and other types of controls such as personal or mass controls. OC could be used for controls included in activities or processes such as statistical quality control or just in time management (Chenhall, 2003, p.129).

Emmanuel *et al.* (1990) present performance evaluation as a major function of management accounting. Managers seek efficient control but this should not be at the expense of effective control. Effectiveness is the key to long run survival.

This concept of effectiveness includes:

- an output target to be reached, achieving a new standard of performance, or
- a more idealistic potential which would be possible if all constraints were removed.

Organizational effectiveness compares present achievement with what could be done if resources were managed more effectively. Where a problem has been defined any solution should recognize the coalition of diverse interest groups establishes the objective to be achieved and that control system should possess the four elements of Tocher's control model (Tocher, 1972). Thus, from the study material on organizations and organization control/effectiveness, the criteria to judge any solution against should have:

- Clear and measurable objectives communicated to members and developed to satisfy the needs of members.
- Measures at the input/transformation and outcome stages to reinforce the objectives.
- A predictive model that helps interprets the information from feed forward and feedback measures.
- Ability to generate alternatives and to assess their suitability/ feasibility/acceptability using the predictive model.

In the 1990s world-wide industry continued to face considerable uncertainty and unprecedented advances in manufacturing and information-processing technologies (Ashton *et al.*, 1995). For example the development of the world-wide web and associated technologies led to the appearance of e-commerce. This further increased and emphasized the challenge of global competition. The focus of management accountants shifted to the generation or creation of value through the effective use of resources. This was to be achieved through the use of technologies which examine the drivers of customer value,

shareholder value, and organizational innovation (IFAC, 1998).

Later on, in the 1990s, managerial accounting entered in the fourth phase by extending the emphasis of planning and control and waste reduction to a more strategic focus on the creation of firm value through the discovery, measurement and administration of the drivers of customer value, organizational innovation and shareholder returns. The corner stone for this change was the emphasis on new accounting methods promoting value creation. These methods include the rise of balance scorecards of indicators of economic success (Kaplan and Norton, 1996), economic value or value added indicators for shareholder returns (Rappaport, 1986; Stewart, 1991) and strategic management accounting systems which provide information on current and future situations of strategic uncertainties (Bromwich, 1990; Simons, 1991).

A few years ago the *Beyond Budgeting* group attempted to restate the role of management accountants. They point out the main problems of traditional budgeting and they argue that traditional budgetary control is proving increasingly unsuitable for the rapidly changing environment of the modern business world. Budgeting is proved a very limited management tool especially when tying performance bonuses to budget achievement. The group suggests traditional budgeting not to play the leading role in performance evaluation, instead line managers should be evaluated and controlled using a set of generally non-financial performance measures (Hope and Fraser, 2003). Otley criticizes this group by stating that “...what seems to be lacking in this approach is some way of maintaining the holistic overview that traditional budgeting systems provided” (Otley, 2008. p.234).

A critical difference between Phase 2 and Phases 3 and 4 is the change in focus way from information provision and towards resource management, in the form of waste reduction (Phase 3) and value creation (Phase 4). However, the focus on information provision in Phase 2 is not lost, but is refigured in Phases 3 and 4. Information becomes a resource, along with other organisational resources; there is a clearer focus on reducing waste (in both real and financial terms) and on leveraging resources for value creation. Accordingly, management accounting is seen in Phases 3 and 4 as an integral part of the management process, as real time information becomes available to management directly and as the distinction between staff and line management becomes blurred. The use of resources (including information) to create value is an integral part of the management process in contemporary organisations.

2.2.2 The research context

A best practice is defined as a superior manner of doing things. It is the combination of

conceptual information with applied behavior to return a competitive advantage for those who practice it. The process must be replicable, transferable and adoptable. The improvement is continual in a constantly changing environment (Institute of Management Accountants, 1997 – 2004). The best combination of tools is labeled best practice. Although Bessant *et al.* (2003) trying to focus on the nature of management practices used the words ‘appropriate practices’ instead of ‘best’ underlying their dynamic character and overcoming the generic and static nature associated with the best practice. Also, trying to prescribe the “one best way” in management accounting practice it is not possible due to the variety of contextual and dynamic factor combinations. It could be feasible, though, to show the various dimensions of MAP or the varieties that need to be considered or selected by practitioners at all levels in the organization as well as the different ways in which MAP and various contextual factors could be integrated and produce good results. Finch (2002) in his study used the term ‘integrated management frameworks’ just to focus to “the fact that what is being adopted is a collection of procedures, ideas, values and tools which together form a management practice” (Leseure *et al.*, 2004). Adopting Finch’s (2002) rationale in this study and due to dynamic nature of management accounting, the term MAP includes a prevalent collection of MA tools and procedures which form the contemporary management accounting practice in the Greek firms.

As mentioned above, Otley (1999) presents a set of five issues which have to be considered when developing a framework for controlling organizational performance these are: Organizational objectives, adoption of plans, performance goals, rewards and penalties, and information flows regarding MIS and MCS. In his concluding remarks states that performance management offers a significant integrating framework both academically and practically. It is well extended much further the traditional frontiers of management accounting, MA practitioners and researchers (the interested parties) will be necessary to develop their capabilities in the following three areas.

First, interested parties need to have a firm grasp of the operational activities of the organization. Second, there should be a connection between control systems design and strategy. Third, there should be a concentration on the external context within the organization is operating, instead than just focusing with internal activities. In his final conclusion he notes that: “Although individual techniques of management accounting and control have been studied individually within a restricted context, they need also to be studied as part of a wider organizational control system. The use of management accounting and control systems can be fruitfully analyzed from the framework of performance measurement and performance management. This makes it clear that management accounting and other performance measurement practices need to be

evaluated not just from an economic perspective, but from a social, behavioral and managerial perspective, within an overall organizational context. It is these social, cross-national and cultural aspects that make the study of control systems such a fascinating topic for academic research and such a challenge to the practitioner”, (Otley, 1999, p.381).

More recently, management accountants are increasingly seen as business partners, focusing more and more on key strategic issues, well beyond the boundary of traditional finance. These new roles, combined with the traditional role of cost management, will lift the management accounting into the next phase of accountability and responsibility (Ernst & Young, 2003).

The research relates this view to contingency theory (and management accounting practices) which as a basic assumption takes the idea that there is no common accounting system replicated evenly to all organizations in all cases. Specific modes of an accounting system depend on the relevant circumstances where the organization belongs and there is no universally applicable system of management accounting and control. The selection of the appropriate systems relies upon the respective business environments to which the firms and their managers belong. Within a contingent framework, there is no typical or fixed answer to the previous question because there is a number of factors that determine the context of every organization. In order to capture data about the status of MA, a significant body of research has been developed specifically to examine the customisation issue of regions and countries (Amat and Roberts, 1994; Yohikawa, 1994; Bescos and Mendoza, 1995; Drury *et al.*, 1995; Ask and Jonsson, 1996; Wijewardena and De Zoysa, 1999, Sulaiman *et al.*, 2004). The regional surveys of Bhimani (1996) for Europe and Lizcano (1996) for Latin America give information related to Management Accounting Practices (MAP) and their varieties. Several studies have explored the positive effects derived from traditional and contemporary MAP in Asia, Europe and the rest of the world (Ghosh and Chan, 1997; Chenhall and Langfield-Smith, 1998; Guilding *et al.*, 1998; Shields, 1998; Haldma and Laats, 2002; Lin and Yu, 2002; Szychta, 2002; O'Connor *et al.*, 2004; Sulaiman *et al.*, 2004).

Attempting to measure the improvement in financial performance and MAP, and more specifically ABC, Cagwin and Bouwman (2002) presented a model explaining the conditions under which ABC is related with improvement of ROI. In their findings also report that when ABC is used concurrently with JIT, TQM, etc, companies enjoy an improvement in financial performance greater than obtained from use of those strategic business initiatives without ABC. They also argue that the sum of the benefits of implementing ABC is greater than the costs incurred but it has not been demonstrated. Their finding is consistent with statements that management accounting systems are meant

to be efficient in supporting organizations' operational effectiveness (Cooper, 1996; Granlund, 1997; Granlund and Lukka, 1998, Sulaiman *et al.*, 2004).

Chenhall and Langfield-Smith (1998b) surveying the Australian manufacturing sector found that the traditional management accounting techniques were found to be more widely adopted than the recently developed ones, also there is an intention for greater attention to newer techniques in the future, especially activity-based techniques and benchmarking. Their study raised a few issues that warrant future research. First, it is too early to hypothesize that traditional management accounting techniques lack relevance. Second, the connection between traditional and recently developed management accounting techniques needs further investigation. Third, the recently developed techniques produced lower benefits than the traditional ones; therefore the conditions necessary to effectively implement these techniques should be further investigated. Fourth, they suggest further investigation for better understanding of the factors that influence differences in the levels of adoption of recently developed MA techniques between countries.

Besides management's opinion that management accounting systems (MAS) pass the cost-benefit test (Foster and Young, 1997) there is no significant research results to validate the alleged benefits of MAP combinations and their interaction with internal and external environmental and organizational factors and its impact on financial and non financial performance. Chenhall (2003) suggests that MCS are useful, improve job satisfaction and enhance organizational performance, however, he argues that there is no evidence to suggest that such links exist. He also proposes the investigation of contextual settings within which they maybe most beneficial (*ibid*, pp.130-132).

In late 1990s in UK, Mann and Abetanjio (1997) presented a programme where companies encouraged assessing their management systems and business performance against a European Business Excellence Model. This aimed to improve the competitiveness of the UK food and drinks industry by increasing the awareness and use of practical business improvement techniques (Mann *et al.*, 1999a).

Mann *et al.* (1999b) concluded that industry needs to be more progressive and more willing to learn and apply new methods. In particular, companies require leaders who develop policies and strategies that really address the needs of the customer (and do not just provide what they think the customer wants) and utilise the full potential of their employees. Performance against policies and strategies needs to be monitored using a performance measurement system that addresses all the financial and non-financial measures that are critical to an organisation's success. These should include measures of customer satisfaction,

employee satisfaction and impact on society; only by so doing will long-term financial success is achieved.

Also Langfield – Smith (2008) in a 25 year review for strategic management accounting (SMA) as a part of MA she states:

[We know that the term “strategic management accounting” is not used widely in practice, and it is specific techniques and processes, such as cost management, strategic analysis, product costing, performance measurement, which are the more relevant and recognizable focus. The generic terms used to describe these techniques may have been in use for many years. However, it is the way that we undertake the techniques that may have changed. Product costing practices undertaken in the 1970s or 1980s may look very different from those same practices in 2007. Similarly, the style and content of performance measurement systems have changed over the decades, to reflect a more strategic orientation.... Future research might focus on considering the nature of contemporary management accounting work and management accounting information that is used within organizations. It would be useful to understand how techniques diffuse into more general practice and into organizational processes. There is much we can learn about how the principles underlying SMA techniques that can be used to inform wider organizational practices and processes].
Langfield – Smith (2008, pp.223-224)

Her major finding is that SMA or SMA techniques have not been adopted widely, nor is the term SMA widely understood or used.

Lately, Otley tried to review MA in the last twenty years. A major issue he tries to underline is that the role of traditional management accounting is diminishing, Otley (2008, pp. 229-30). He states that most of the methods proved to be combinations of older techniques and that developments appearing to offer most potential involve areas where the traditional skills of a management accountant are able to add little value. Also he states that there is a reflection of this situation in professional practice where the role of management accountants is not that popular any more. Otley (2008) concludes that he does not believe that “management accounting” is any longer a useful conceptual category for organizing research activity.

Additionally, Milne *et al.* (2008) state that MA practitioners do not appear to believe that it is a very useful distinction to be made in practice either. It is necessary that researchers to examine organizational practices to have an insight the functions they serve, and they suggest:

“Rather, we need to examine organizational routines and practices to better understand the functions they serve. One category of such routines might usefully be thought of as “control” procedures. These involve the processes in which organizations engage to help ensure that their strategies, plans and objectives are attained. Thus, the category of “management control systems” or “performance management systems” provides a more focused framework for analysis. This conclusion will be shown to have far reaching implications for the practice of academic research.” (Milne *et al.*, 2008, p.123).

In Greece, Ballas and Venieris (1996) after conducting a series of interviews in some major Greek firms noted that there was no clear picture as to what guides MA development in Greece. In their concluding remarks state that most companies used accounting for fiscal consideration purposes instead as a tool to improve their management. MAP for Greek companies was summarized mostly in cost and budgeting methods aiming in better pricing and planning practices. Some companies were aware of modern costing methods such as ABC but the majority of firms followed the traditional costing methods such as full costing.

Cohen *et al.* (2005) in their concluding remarks state that Greek firms in their decision to adopt a costing method or ABC does not associate to the costing or structural profile of firms, nor is based to modern trends, but is rather determined by which technique better suits the actual needs of each organization. In an other study in Greece, Venieris and Cohen (2008) report that production flexibility is a significant factor driving companies towards ABC adoption.

This study builds on, and is informed by, the tradition and accumulated findings of such research. However, the work is distinguished from earlier studies in that it tests empirically and simultaneously the effects of external and internal contingent factors on MAP and firm performance (financial and non-financial). It looks at a broad set of management accounting practices (Planning and budgeting, decision support, cost analysis, performance evaluation, strategic management) and tries to raise the contextual issues that trigger MAP, using Greek firms as a sample. It also responds to the call for research with 'greater understanding of both individual practices and macroscopic relationships among practices' (Anderson and Lanen, 1999, pp. 408-9).

Otley (2008, p.238) suggests eight desirable attributes in a research project and he names the eight "I's" of a good research project. These are:

- (1) Incremental – builds on what we already know.
- (2) Interpretive – includes individual perceptions that drive behaviour.
- (3) Integrated – keeps a holistic focus.
- (4) Inclusive – considers all stakeholders.
- (5) International – not confined to a single culture.
- (6) Imaginative – not formulaic.
- (7) Interesting – or why do it?
- (8) Influential – relevant to practice.

This research can be seen as extension to the above as it seeks to identify the level of sophistication of management accounting practices which are an important part of companies' management control systems. More specifically, this study attempts to explore the effects of

MAP influenced by the specific internal - external contingencies and organizational characteristics and measure them against firm performance. To address this gap, a detailed model is developed to describe the relationship between MAP and specific internal and external contingencies and organizational characteristics on firm performance. Four hypotheses are generated and tested using a questionnaire survey and selected interviews on the medium and large-sized organizations in Greece. Also the relevance between the traditional and the recently developed MA tools is examined, the degree of their implementation and the level of benefits received for the practicing organization.

Summarizing this research seeks insight into the following basic questions:

- What is the relationship among MAP, internal and external contextual factors and firm performance (financial and non-financial) in the Greek industry?
- What is the level of implementation and relative benefits gained from certain traditional and recently developed MAP in Greece? Which are the intentions of the practitioners and the future emphasis for certain MAP? Why?
- Which are the main reasons that managers select specific MAP and how these practices are influenced by the internal and external contingent factors?

2.3 SUMMARY

This chapter has summarized two streams of research: 1) management control and management accounting research theory, 2) organizational control and performance measurement frameworks. Also the following philosophical frameworks are adopted:

1) the interpretive theory of the firm, 2) the contingency theory framework.

The first section presented an overview of the major organization assumptions in this dissertation as well as the view those firms as social systems that must process and interpret uncertain and ambiguous information for action. Organizational theory has developed the argument that firms are not the black boxes of neoclassical economic theory. Managers' choices matter. For this study it is assumed that managers are the ones to decide which MAP to select based on internal and external influences. Management accounting as a social behavior needs to be analyzed to understand its various components and practices and their impact on the organization.

The contingency theory framework states that there is no common accounting system replicated evenly to all organizations in all cases. The same principles apply for MA as well. Specific modes of an accounting system depend on the relevant circumstances where the organization belongs; also there is no universally applicable system of

management accounting and control. The selection of the appropriate systems relies upon the respective business environments where the firms belong to. The most popular contingent factors that influence MAP are the external environment, technology, competitive strategy and mission, business unit and industry characteristics, knowledge and observability factors. More specifically some of the most common internal factors are strategy, technology, and organizational size. Some of the most common external factors are external environment and national culture. Contingency based studies present a liaison between the utilization of management accounting practice and improved performance. This research will draw on this idea to examine whether it is applicable in Greece too. Also proceed further to distinguish which are the most prevalent MAP among firms and whether firms gain any significant benefits on their performance results.

Through the interpretive theory of the firm, the managers' roles into MCS and their choices are critical to the scanning, interpretation, and strategic action processes. All these interactions reflect to company's effectiveness and eventually to firm's performance. Therefore MAP are not natural phenomena which pend on social actors. Researchers cannot just generalize but should strive to discover the rules which structure social behavior. Manager's choices matter and MA as a social behavior needs to be analyzed in order to understand its various components and their impact on the organization. This research will draw on this idea as well and it will be attempted to analyze managers' behavior for selecting various MAP and the reasons behind these selections.

The research design as it stands provides a description of MA tools and its relation to variables. The analysis of the questionnaire survey provides common patterns to be identified. Also interviews provide the collection of respondents' perceptions/understanding (semi-structured/open interviews) as to why their particular combinations of MA tools occurred and how they influence success. Thus the aim of this interview will be to deduce how the individuals view the structure/environment that MA tools operate within and how they view and their choices and use within the structure/environment of MAP. This will also lead to an identification of how they see MAP as being supported and perpetuating and their views on the impact of the contingent variables. Interviewing is the most effective method for probing those structural depths, however for the researcher there needs to be a methodological concern at the interview level to ensure that the material being gathered is yielded from deep thinking on structures/environment and its impact and probes beneath the superficial and ordinary.

Finally, research that provides insight into the use of management accounting and control systems from the framework of performance measurement and performance

management is discussed. This makes it clear that management accounting needs to be evaluated not just from an economic perspective, but from a social, behavioral and managerial perspective, within an overall organizational context. Also research presents findings which are consistent with statements that management accounting systems are meant to be efficient in supporting organizations' operational effectiveness. Here, one of the main concerns is to dictate the more efficient systems and under the conditions they operate. Some other findings suggest that it is too early to hypothesize that traditional management accounting techniques lack relevance; the connection between traditional and recently developed management accounting techniques needs further investigation; the recently developed techniques produced lower benefits than the traditional ones, therefore the conditions necessary to effectively implement these techniques should be further investigated; further investigation is suggested for better understanding of the factors that influence differences in the levels of adoption of recently developed MA techniques between countries. Also, Otley further suggests moving away from the constraints that have limited our thinking so far and investigating how contemporary organizations tackling the important issues of achieving control and managing risk (Otley, 2008).

To date, the above research streams have not been integrated to the extent to improve our understanding of the relationships: between MAP and benefits received, between MAP and internal and external organizational factors which enable or disable these practices, between MAP and organizational performance. This dissertation addresses this gap in the literature by developing a model and hypotheses, and performing empirical tests supplemented by interviews to examine these relationships. The next chapter explains the model development in more detail and presents its underlying hypotheses.

Chapter 3 – MODEL DEVELOPMENT AND RESEARCH HYPOTHESES

3.1 MODEL DEVELOPMENT

The literature review provided the theoretical and empirical background for the proposed model. A contingency based view of the components of MAP is central to this model. Therefore the MAP concept is developed based on ideas suggested in the contingency literature. The model is adapted to Greek reality according to the majority of practitioners' responses gathered in the pilot study phase. The MA tool-based literature then provides a theoretical basis for understanding the various internal and external influences exercised on the MAP context.

The key independent constructs of this model are based on the breakdown of MA tools, organizational characteristics, and contingent internal and external organizational factors. To provide empirical and theoretical background of these constructs, literature which explores the behaviour of each one and how they interact each to other and to firm performance is reviewed in the following section. This literature highlights the significance in participation of each one of the above constructs-variables in firm performance.

3.1.1 A Suggested Model Of MAP And Firm Performance

For the purposes of this study the impact of MAP on financial and non financial performance is examined based on the following relationships.

$\Delta FP = f(\text{MAP, contingencies, control variables})$	$\Delta NFP = f(\text{MAP, contingencies, control variables})$
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Where, ΔFP is the change in the composite construct of financial performance measurement including both the Market Performance (MP) construct and the Corporate Performance (CP) construct. ΔNFP is the change in the composite construct of non financial performance measurement which represents the Operational Performance (OP). The relationships between the constructs are presented graphically in Figure 3.1. The figures show that MAP is a latent construct that consists of five components or endogenous constructs : Planning and Budgeting Tools (PB Tools), Decision Support Tools (DS Tools), Cost Analysis Tools (CA Tools), Performance Evaluation Tools (PE Tools), and Strategic Management Accounting Tools (SMA Tools). The figure also identifies five specific enabling conditions: Management Techniques (MAN.TEC), Other Influences (OTH.INF), Business Philosophy

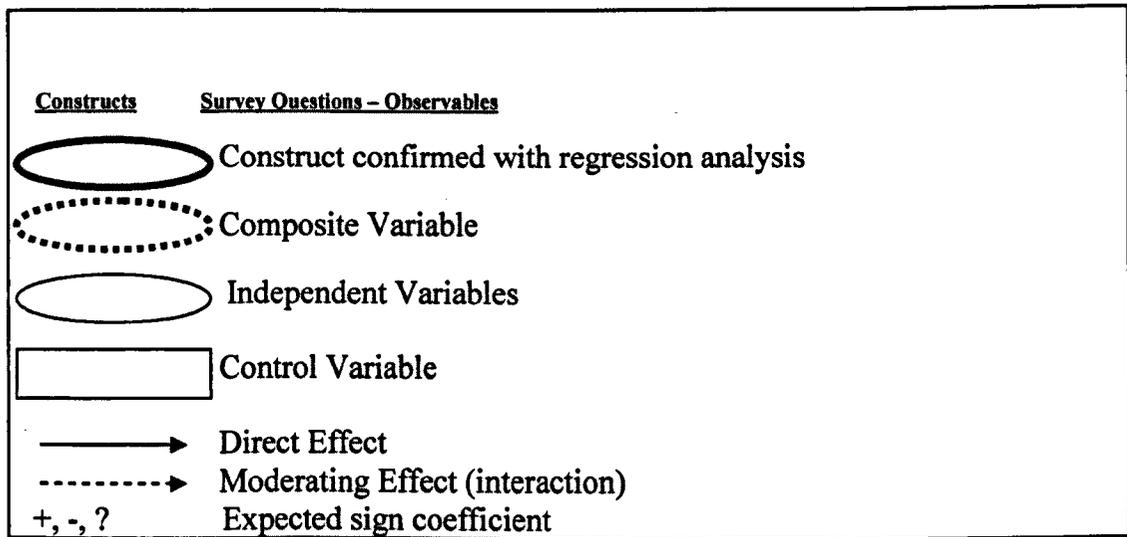
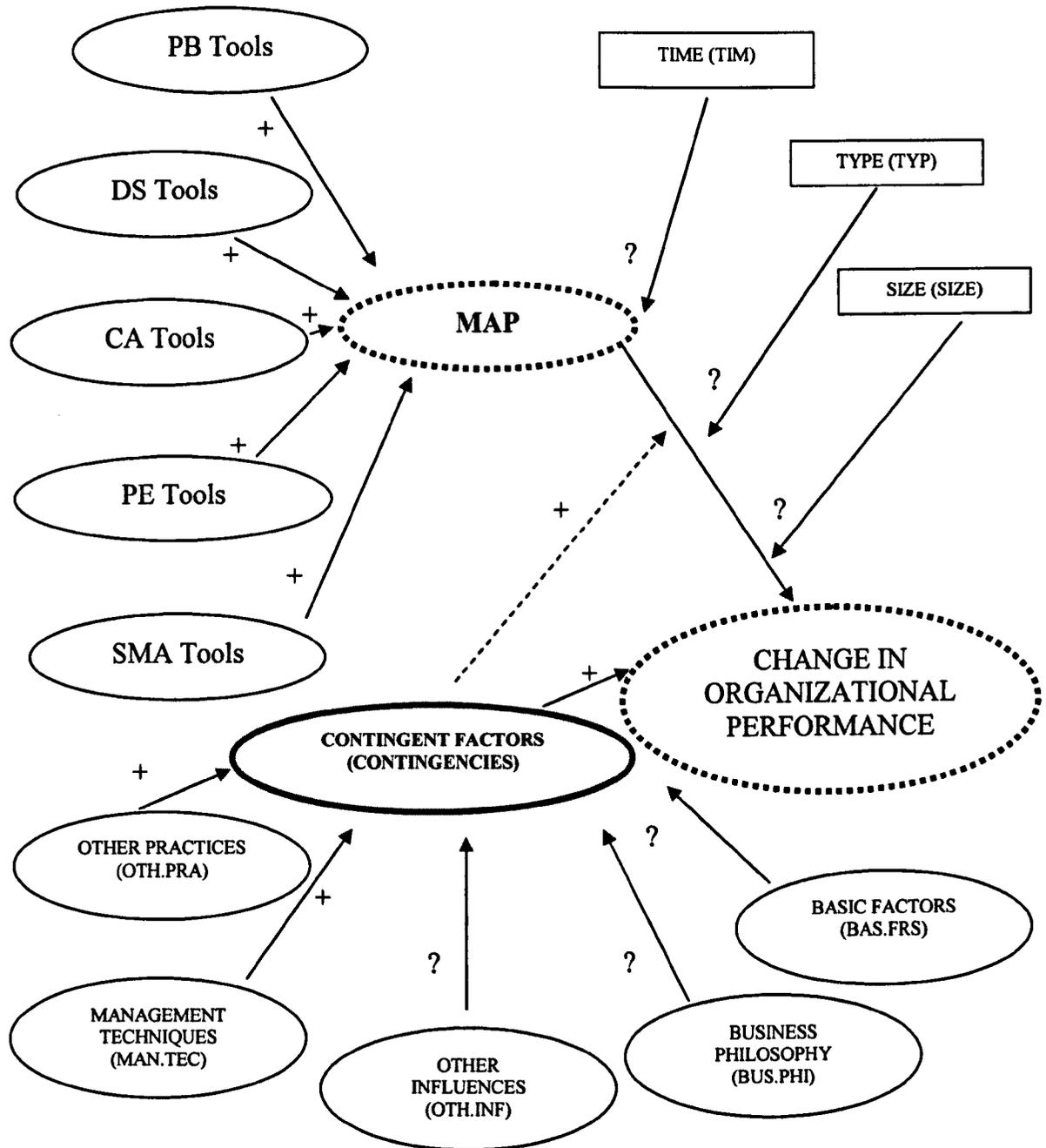


Figure 3.1: The association of MAP with improved organizational performance

(BUS.PHI) and Basic Factors (BAS.FRS) and Other Practices (OTH.PRA). Control variables include: Type (TYP), Size (SIZ) and Time (TIM). Variable names are capitalized (Figure 3.1). The literature used to identify an appropriate measure for each construct is included in Appendix 1. Most constructs are latent constructs composed of two or more manifest variables (items). Composite scores of multiple variables have the advantage of capturing more of a construct's multi dimensionality than individual questions (Foster and Swenson, 1997). Use of multi item measures also reduces the effect of random and measurement errors, and structural coefficients obtained are less biased than those obtained using manifest variables alone (Libby and Tan, 1994).

3.1.2 Key Constructs

The Key Constructs consist of:

MA Tools:	The list and categorization of management accounting practices adopted from various studies and the necessary alterations were made in order to adapt it to the Greek reality. The categories are: Planning and Budgeting, Decision Support, Cost Analysis, Performance Evaluation, Strategic Management Accounting.
Contingent Factors:	Other Practices, Management Techniques, Basic Factors, Business Philosophy, Other Influences.
Organizational Characteristics:	Type, Size, Time.
Firm Performance:	In this model the dependent variable is firm performance. Firm performance is the central attribute of strategy research (Venkatraman and Ramanujam, 1986) because improvement in organizational performance is the end goal of companies' efforts (Schedel and Hofer, 1979). A fundamental issue in strategic management is that a key role of managers is to identify and develop sources of sustainable competitive advantage that lead to superior firm performance (Andrews, 1980; Prahalad and Hamel, 1990).

Figure 3.2: Key Constructs – Variables

Further analysis on the variables and authors in Appendix 2.

The MAP concept – MA Tools

Management Accounting Practices (MAP): Various researchers presented evidence regarding MAP and related benefits, (Chenhall and Langfield-Smith, 1998; Ernst & Young and IMA, 2003; Baines and Langfield-Smith, 2003). These academics divide MAP in four major, but conceptual, categories as follows: Planning and Budgeting Tools (PB Tools), Decision Support Tools (DS Tools), Cost Analysis Tools (CA Tools), Performance Evaluation Tools (PE Tools). Guilding *et al.* (2000) in their international study about Strategic Management Accounting (SMA) argue that an ordinary MAS is not long-termed and future-oriented nor has any marketing or competitor focus. These systems provide information concerning the current and expected states of strategic uncertainties (Bromwich, 1990; Simons, 1991). Thus, SMA comes to complement the gap. Therefore in the current study an advanced MA category will be added, the Strategic Management Accounting Tools (SMA Tools).

It has to be noted that the categorization of MAP, all categories, is presented for first time from this study and in this format. It is not exhaustive but includes all most popular MAP suggested in the current MA literature. The latent variable Management Accounting Practices (MAP) is comprised from the five aforementioned categories.

A more detailed analysis of items comprising of each tool is following:

- **Planning and Budgeting Tools (PB Tools):**

Formal strategic planning,

Capital budgeting techniques:

- Return on Investment (ROI)
- Net present value (NPV)
- Internal rate of return (IRR)
- NPV Sensitivity analysis

Strategic plans developed:

- Together with budgets
- Separate from budgets

Long range forecasting

Detail budgeting systems for:

- Controlling costs
- Compensating managers
- Coordinating activities across the business units
- Linking financial position, resources and activities (e.g. activity based

budgets)

- Planning:
- Day-to-day operations
- Cash flows
- Financial position
- Operational budgeting

- **Decision Support Tools (DS Tools):**

Decision support systems:

- Cost volume profit analysis (e.g. breakeven analysis)
- Product life cycle
- Activity based management
- Product profitability analysis

Benchmarking of:

- Product characteristics
- Operational processes
- Management processes
- Strategic priorities

Benchmarking carried out:

- Within the wider organization
- With outside organizations

Value chain analysis

Operations research techniques

- **Cost Analysis Tools (CA Tools):**

- Absorption or full costing
- Activity – based costing
- Process costing
- Job order costing
- Standard costing
- Marginal / Direct costing
- Project costing

- **Performance Evaluation Tools (PE Tools):**

Performance evaluation is based on:

- Budget variance analysis
- Controllable profit
- Divisional profit
- Residual income (e.g. interested adjusted profit)
- Return (profit) on investment
- Cash flow return on investment
- Non – financial measures
- Team performance
- Employee attitudes
- Qualitative measures
- Balance scorecard (mix of financial and non-financial measures)
- Customer satisfaction surveys
- Ongoing supplier evaluations

Items for the first four tools (PB, DS, CA, PE) adopted from Chenhall and Langfield-Smith, (1998). The following items were dismissed from the final questionnaire due to advice from academics and practitioners during the piloting phase:

PB Tools:

Detail budgeting systems for: Coordinating activities across the business units,
Detail budgeting systems for: Day-to-day operations,

PE tools:

Performance evaluation is based on: Cash flow return on investment.

• **Strategic Management Accounting Tools (SMA Tools):**

- Competitor cost assessment
- Attribute costing
- Life cycle costing
- Quality costing
- Strategic costing
- Strategic pricing
- Target costing
- Value chain costing
- Brand value budgeting and monitoring
- Competitive position monitoring

- Competitor appraisal based on published financial statements

Items for the SMA category are adopted from Guilding *et al.* (2000). The following item was dismissed from the final questionnaire due to advice from academics and practitioners during the piloting phase: Competitive position monitoring.

Also the following item was adopted for this research but dismissed due to opposite opinions by practitioners and academics, during the piloting phase, which these practices do not exist in Greece: Throughput accounting and lean accounting.

Goldratt (1990) in his Theory of Constraints proposes *Throughput Accounting* as an alternative to cost accounting method. It is not based on Standard Costing or Activity Based Costing (ABC). Throughput Accounting is not costing and it does not allocate costs to products and services. It can be viewed as business intelligence for profit maximization. Conceptually throughput accounting seeks to increase the velocity at which products move through an organization by eliminating bottlenecks within the organization. Throughput accounting improves profit performance with better management decisions by using measurements that more closely reflect the effect of decisions on three critical monetary variables (throughput, inventory, and operating expense — defined below).

Lean accounting : In the mid to late 1990s several books were written about accounting in the lean enterprise (companies implementing elements of the Toyota Production System). The term lean accounting was coined during that period. These books contest that traditional accounting methods are better suited for mass production and do not support or measure good business practices in just in time manufacturing and services. Maskell and Baggaley (2003) state that lean accounting is the general term for the changes required to a company's accounting, control, measurement, and management process to support lean manufacturing and lean thinking. Most companies embarking on lean manufacturing soon find that their accounting processes and management methods are at odds with the lean changes they are making. The reason for this is that traditional accounting and management methods were designed to support traditional manufacturing; they are based upon mass production thinking. Lean manufacturing breaks the rules of mass production, and so the traditional accounting and management methods are unsuitable and usually actively hostile to the lean changes the company is making.

Contingent Factors (Contingencies)

Previous research presents evidence that the benefits from MAP are better realized under specific contextual conditions. The following factors (variables) are incorporated into the model hence testing the efficacy of MAP (see Appendix 1 for variable specification).

- *Other Practices (OTH.PRA)*: In smaller companies quality is interpreted as customer satisfaction, while in bigger companies the term Total Quality Management (TQM) is more often used and in most of cases there is a respective program in session, (Kettinger, 2001), and he concludes: Product or service quality is the top priority of successful business. An enterprise should direct all efforts at satisfying the customer which is the key to survival. Ittner and Larcker (1995) show a significant interaction between TQM practices and MA systems on performance. Sim and Killough (1998) argue that the implementation of TQM or JIT when combined with performance-contingent rewards should lead to higher manufacturing performance than would be achieved by TQM or JIT alone, and they conclude that some firms have not experienced performance gains from implementing TQM or JIT because they have relied on inappropriate MA systems. The best configuration of MA systems is contingent upon the type of production system. Mia (2000) reported that the utilization of broadly based MAS enhanced organizational performance in JIT settings. Chenhall (1997) found positive results after combinations of non-financial measures and TQM, while Perera *et al.* (1997) did not. Chenhall (2003) summarizes the findings from contingency-based research concerning management control systems and TQM by noting that “TQM is associated with broadly based MCSs including timely, flexible, externally focused information; close interactions between advanced technologies and strategy; and non-financial performance measurement.” (p.143).

Also the model will try to catch any possible synergies between MAP and those technologies - practices. Thus, the variable OTH.PRA is a good indicator for other strategic business initiatives.

The synthesis of this variable (OTH.PRA) is made from items mentioned in the above articles trying to understand how and if these items affect the use of MAP in the respective organizations. The above list is not exhaustive, is made from the most popular methods available and suggested by major researchers before the issuance of the questionnaire.

- *Other Influences (OTH.INF)*: Bhimani (1996) for Western European countries and Lizcano (1996) for Latin American countries and Blake *et al.* (2003) and Shields (1998), commenting in the previous two authors identified eleven factors followed by empirical evidence that influence MAP. These are:

- 1) Academics: In some countries academics could persuade practitioners and other academics in promoting a distinctive national approach to MA.
- 2) Education of students and employees: It includes the influence of some textbooks and teaching cases which contribute in the diffusion of MAP.
- 3) Government intervention: such as taxation, price controls and ideology.
- 4) Professional associations: which promote specific MAP.
- 5) Individual consultants: who promote specific MAP or associate firms in designing and implementing practices.
- 6) Technology: in particular with office and systems automation this allows information to be manipulated easier, cheaper and quicker.
- 7) Transfer of MA knowledge and practices: by academics, education, consultants, and multi-national organizations across national borders.
- 8) Protection and Competition are sometimes a major force for the development of MAP, such as in the Spanish industry in mid seventies and in Argentina after the removal of tariff barriers with the country's "Mercosur" partners (Brazil, Paraguay, and Uruguay).
- 9) Ownership of the firm: many times family owned companies are reluctant to entrust professionals to implement various MAP or on the other hand family members could be the ones that force professionals to implement.
- 10) Bonus schemes: pending on the MA info and how it is used for salary and bonus decisions MAP vary in different countries. For example if divisional managers are to be evaluated in US and Japan, in the US the base is profit and in Japan is sales growth.
- 11) Inflation: Lizcano (1996) reports that in some countries (Brazil, Argentina) exercise some kind of inflation accounting in order to isolate some inflation gains or losses.

The synthesis of this variable (OTH.INF) is made from items mentioned in Blake *et al.* (2003) and Shields (1998), trying to understand how and if these items affect the use of MAP in the respective organizations.

- *Management Techniques (MAN.TEC)*: Some management techniques may enhance

a firm's abilities to support its products. In the 90's high quality had become a common feature of companies that used to implement differentiation strategies (Porter, 1990). In the beginning of the millennium and because of the worldwide economic instability most companies trying to maintain their existing market shares and in order to explore new developing ones have shifted their strategy to low cost with combination with product differentiation. While Porter (Porter, 1980; Porter, 1985) suggested that a firm should choose between competing on either product differentiation or low price, firms may focus on a range of combinations of product differentiation and low price strategies (Shank, 1989; Belohlav, 1993). To implement these strategies successfully, management may implement various techniques that could persuade customers that their products are of high quality at the possible lower price. Some of these techniques are: Improving – integrating existing processes, implementing – certifying quality systems, manufacturing systems innovations, integrating systems, human resource management policies (Chenhall and Langfield-Smith, 1998c).

The synthesis of this variable (MAN.TEC) is made from items mentioned in Chenhall and Langfield-Smith, (1998c), trying to understand how and if these items affect the use of MAP in the respective organizations.

- *Basic Factors (BAS.FRS)*: The variable Basic Factors includes the following important items:
 - *Information Technology*: An information system giving detailed historical data and easy access to users may provide much of the planning, costing, evaluating and decision support needed by a Management Accounting System - MAS. Cooper (1998) suggests that a MAS becomes more beneficial as the cost data collection and manipulation is reduced, which presupposes higher levels of information technology. Reeve (1996) reports that an integrated MAS requires a relatively high level of sophisticated information with extensive, flexible, and real time information availability.
 - *External environment*: One of the most researched aspects of environment is uncertainty. While organizations operate in conditions of environmental uncertainty tend to use combinations of traditional and budgetary control and more interpersonal and flexible controls. Merchant (1990) found that environmental uncertainty was in close relation with pressure for achieving financial goals. Chapman (1998) suggested

that MA has an important role to play in planning in conditions of uncertainty but there should be a close cooperation between accountants and other managers. Otley (1978) underlined that environmental hostility plays a major role in meeting budget targets.

- *Organizational structure:* Large and decentralized firms utilize more administrative controls (more sophisticated budgeting procedures, etc) and emphasize more on managerial performance which is associated with decentralization, integrated, aggregated and timely information derived from MAS (Bruns and Waterhouse, 1975; Merchant, 1981; Chenhall and Moris, 1986; Chia, 1995). There is evidence connecting MAS to functional structure and differentiation which is associated with formality of budgetary processes (Merchant, 1984). Foster and Gupta (1994) reported that improvements in MAP would contribute for better management decisions, customer mix, sales/force promotions and product mix. Also organizational needs and theory present the need for enterprises to adopt flexible, open information systems rather than strict budgetary systems.

- *Strategy:* Occasionally various researchers have developed generic taxonomies about strategy including: entrepreneurial – conservative (Miller and Friesen, 1982), prospectors – analyzers – defenders (Miles and Snow, 1978), build – hold – harvest (Gupta & Govindarajan, 1984), product differentiation-cost leadership (Porter, 1980; 1985). Pending on the strategy followed managers usually develop the appropriate MAS in order to respond to the respective environment where the organization is operating, thus, companies with defender, harvest and cost leadership strategies tend to develop formal performance measurement systems including budget performance targets. Those who follow prospector strategies usually develop long term controls and interactive use of budgets focused on informal channels of communication (Boowens and Abernethy, 2000; and Guilding, 1999). Researchers found a systematic use of MAP, such as quality improvement programs, benchmarking and activity-based management in organizations which mostly emphasized on product differentiation strategies, and this created high performance. MAP can assist the labor force to become more focused on achieving differentiation priorities such as quality, delivery and customer service (Chenhall and Langfield-Smith, 1998c; Callahan and Gabriel, 1998). Failure to include measures such as customer satisfaction, manufacturing excellence, market leadership, quality, reliability, responsiveness and technological leadership (Eccles, 1991; Fisher, 1992), in modern MAS will bind an organization from achieving differentiation strategies such as customer satisfaction, quality, speed, learning and process improvement (Sim and Killough, 1998).

- *National Culture*: National culture is an important factor in the design of MAS and MAP over the last 25 years, especially to those who have developed multinational operations. One major dilemma which these companies usually face is whether to transfer their domestic MAS overseas or redesign their systems to adopt the cultural features of the offshore organizations. Some basic components of culture are: knowledge, law, art, belief, morals, and other capacities acquired by people as members of society (Seymour-Smith, 1986). Snodgrass and Grant (1986) found that Japanese compared to US, companies practice less tight management and more tight management in monitoring, evaluation and rewarding. Ueno and Wu (1993) also found differences between Japanese and US managers on MAP characteristics. They developed the theoretical framework that American executives were more related to individualism (self interest) and relied more on formal communications, built slack, used controllability in budgeting and long term horizons for performance evaluation. Also Japanese firms were more focused on uncertainty avoidance, and had a preference in broad time horizons for performance evaluation. These relations were not supported empirically deriving the conclusion that individualism is the major predictor for MAP. Vance *et al.* (1992) studied formality of management controls, team development, evaluation systems, rewards, and feed back systems among US, Thai, Indonesian and Malaysian companies. Major differences existed between US and Asian companies and in among Asian firms. Their study mostly used Hofstede's (1984) dimension plus some other concepts of culture depicted from anthropology. Also other studies using experimental methods have not succeeded to present expected effects and have presented mixed and ambiguous results (Chow *et al.* 1991; 1994).

The synthesis of this variable (BAS.FCS) is made from items mentioned in the above articles but only as concepts (Information Technology, Strategy, etc) trying to understand whether these concepts affect the use of MAP in the respective organizations. The above list is not exhaustive, is made from the most popular items available and suggested by major researchers before the issuance of the questionnaire.

- *Business Philosophy (BUS.PHI)*: As already mentioned some researchers have presented various business practices and how these reflect to organization's philosophy. Hussain (2003) argues that when companies operate in unstable economic environment managers intent to exercise MA for profit measurement and focus less on improving and measuring non financial performance. On the contrary

when companies operate in a more stable economic environment the intention of the managers is to focus on management accounting systems for measuring and improving both financial and non financial performance with greater focus on the non financial performance. Hussain (2002) also argues that financial performance measures such as profit margin, rate of return, etc. receive greater appreciation than the non financial ones such as: quality, customer satisfaction, social responsibility, etc. Miles and Snow (1978), Gordon and Narayan (1984), Mia and Ghenhall (1994), and Morissette (1998) argue that executives tend to use more financial information than non – financial when they operate in environmental and economic uncertainty. In such instance MAP could operate as a tool in order to improve PM. Hussain (2003) reports that when companies enjoy better financial conditions managers consider more about long term success based on non – financial performance indicators. To the contrary when they go through economic troublesome they try to improve financial performance. In the UK, Dugdale (1994) reports that budgeting was the leading practice among some other thirty MA techniques.

The synthesis of this variable (BUS.PHI) is made from items in the above mentioned articles trying to understand whether these items affect the firm's philosophy and eventually the use of MAP in the respective organizations.

Organizational Characteristics

Some of the organizational characteristics that influence the MAP implementation are the following:

- *Size (SIZ)*: There is not much evidence to consider size as a contextual variable. Usually as an organization becomes bigger the greater becomes the need for more complicated and formal controls. Khandwalla (1972, 1977) found that large firms had a more diversified production system, were more automated, had larger organizational structures, used more sophisticated and control mechanisms, analyzed to higher extent environmental information such as forecasting and market research. Also he argues that budgeted sales are the integrated sign on how size is associated with planning, budgeting and organizational structure. Merchant (1981) found that big companies were more decentralized, used sophisticated budgets in a participative way and practised more formal communications. Pugh *et al.* found that the number of employees is correlated with net assets (Pugh *et al.*,

1968; 1969).

- *Type (TYP)*: Various researchers have reported that different type of organizations affect the relation between innovation and performance, (Georgantzas and Shapiro, 1993; Schroeder, 1990). In this study, industry- adjusted dependent variables are used in order to eliminate microeconomic differences between industries, eliminating the need to model a direct effect. Also MAS research suggests that the efficacy of initiatives might be different between various types of industries (Rotch, 1990; Cooper, 1988; 1989).
- *Time (TIM)*: In their study about ABC Cagwin and Bouwman, include time as one basic control variable which affects implementation of ABC. In this study we'll use the same thought and examine the effect of time since MAP started to be implemented in the organization (Cagwin and Bouwman, 2002).

The synthesis of the above three variables (SIZ, TYP, TIM) is made from items mentioned in Cagwin and Bouwman, (2002) but only as concepts (size, type, time), binary variables, trying to understand how and if these concepts affect the use of MAP in the respective organizations.

3.2 DIRECT ASSOCIATION OF MAP WITH CHANGE IN PERFORMANCE

The arguments in support of MAP are generally based on the comparative advantage that organizations can gain from the valuable information generated through MAP and eventually improve performance. Although MA tools as a basic component of an MCS have strong theoretical support, various researchers (Otley, 1986; Ward, 1992; Otley, 1999; Chenhall and Langfield-Smith, 1998a; 1998b; 1998c; Chenhall, 2003) suggest that practitioners should be cautious in selecting the appropriate tools suitable for their organizations attempting to gain maximum benefits and eventually to maximize performance, because not every MAP will produce the same benefits across the firms.

The first issue for investigation here is whether increasing use of MAP (more MA tools) is directly associated with improvement of performance (financial or non-financial) without regard to firm and sector-specific environmental characteristics. The second is, what is the "best" combination of the MA tools (or the most prevalent tools) available that maximize performance. Both issues have not been empirically tested simultaneously. This leads to the following alternative hypotheses.

H1. There is a positive association between the extent of use of MAP and relative improvement in financial performance (compared with other firms in the industry).

With null hypothesis:

H1₀. There is no positive association between the extent of use of MAP and relative improvement in financial performance (compared with other firms in the industry).

And

H2. There is a positive association between the extent of use of MAP and relative improvement in non financial performance (compared with other firms in the industry).

With null hypothesis:

H2₀. There is no positive association between the extent of use of MAP and relative improvement in non financial performance (compared with other firms in the industry).

Financial (market and corporate) and non financial (operational) performance are measured relatively to other firms in the industry while some variables of interest and some independent variables are tested. The evaluation of the aforementioned hypotheses consist a baseline for this research. If MAP provide a comparative advantage, on average, for every firm, regardless of its circumstances then confirmation would be expected for the alternative hypotheses. Also, if as expected realization of the benefits of MAP require some other specific conditions then the focus will shift to hypotheses three and four (see paragraph, 3.4).

3.3 MEASURES OF ORGANIZATIONAL PERFORMANCE

In this model, the dependent variable is firm performance. Firm performance is the central attribute of strategy research (Venkatraman and Ramujam, 1986) because performance is the ultimate test of any strategy (Schendel and Hofer, 1979). A crucial tenet in strategic management is that key role of managers is to identify and develop sources of sustainable competitive advantage that lead to superior firm performance (Andrews, 1980; Prahalad and Hamel, 1990).

Roehm *et al.* (2000) report that organizations establish control systems to help downsize risk and achieve organizational objectives. These systems are made from a set of measures for defined entities, various criteria for evaluating these measures, and processes for obtaining these measures and evaluating them. The output of a company's accounting system could be the "set of measures" and the predetermined standards, and budgets could be the "criteria for evaluating these measures", the various MA practices could be "the processes for obtaining and evaluating these measures".

As mentioned previously for the purpose of this study organizational performance

is separated in two sets of measures. The non-financial ones and the financial ones. The former comprises operational performance measures and the latest corporate and market performance measures. Banerjee and Kane (1996) report that there is a need for integration of non-financial and financial figures for performance measurement. Kaplan (1984) suggests that financial measures are important however other indicators such as product innovation, product leadership, employee skills and morale, and customer loyalty can be much better indicators for future profitability and thus company performance.

The accounting literature is ambiguous about whether non-financial measures have relative or incremental information content, or both, beyond lagged financial measures for future financial performance. Although it is often stated that non-financial performance measures are better indicators for future financial performance than lagged financial performance, the empirical accounting research evaluates the incremental contribution of non-financial measures beyond lagged financial measures (Wiersma, 2008).

Financial Performance Measures

Market Performance - Profitability and market performance are the two basic components of financial performance (Spanos and Lioukas, 2003). In the current study are treated as additional constructs to operational performance in order to investigate further interdependencies with it. Since profit margin and net profit are basic indicators for a firm's profitability and the former is included in ROI ratio calculation these two items will be included in the category of Corporate Performance (Hilton, 1994; Friedlob *et al.*, 2002). The most common measures for market performance are: Sales Volume, Growth in Sales Volume, Market Share, and Growth in Market Share (Spanos and Lioukas, 2003). This study after having some discussions with practitioners and academics during the piloting phase will use these measures to measure market performance.

Corporate Performance - The most common measures of corporate performance are: Net profit, Return on Investment (ROI), Profit Margin, Asset Turnover, Return on Equity (ROE), Economic Value Added (EVA), Market Value Added (MVA), (Friedlob *et al.*, 2002). There is plenty of evidence from surveys performed in various countries that financial performance measures are of high appreciation. In the US (McKinnon and Bruns, 1992) reported that actual sales, profit and income as the most important indicators of performance measurement. In Australia (Dean *et al.*, 1991) found that the most common performance measures are variance analysis on expenditures, operating income and ROI. Also in Europe there is enough evidence to support that financial measures are highly appreciated. ROI and profit are the leading ones in the Netherlands (Groot, 1996).

Standard cost, contribution margin and cost based criteria are widely used in Germany (Scherrer, 1996), Belgium (Bruggeman *et al.*, 1996), and Denmark (Israelsen *et al.*, 1996). This study after having some discussions with practitioners and academics during the piloting phase will use the following measures to measure corporate performance: return on investment (ROI), net profit, profit margin, and asset turnover.

Financial measures have been criticized from time to time. The choice of measures to guide and evaluate the performance of business units is one of the most critical challenges facing organizations (Ittner and Larcker, 1998). Management accounting should report all relevant information related to the evaluation of business units' performance. Systems which focus solely on financial measures such as profits, return on investment, standard costs and variance analysis have been widely criticized (e.g. Ittner *et al.*, 1997; Kaplan and Norton, 1996; Shields, 1997). The criticisms arise because these measures are distorted by external reporting conventions, they promote short-termism and accounting manipulation, and do not take into consideration the cost of capital or non-financial 'leading' measures such customer satisfaction, labor efficiency or innovation. To incorporate the cost of capital into financial measures a variety of "economic value" measures have been introduced (Ittner and Larcker, 1998).

Although financial indicators have received some criticism, in daily practice are those which usually attract the first attention when some firm is to be evaluated or to be criticized. This research attempting to collect performance information from both "sides" uses non-financial performance indicators as well which are presented in the following section.

Non - Financial Performance Measures

Operational Performance - The most common measures in this category are: unit cost, quality, delivery, flexibility, and speed of new product introduction (Ahmad and Schroeder, 2003). In Denmark findings report that non – financial measures such as inventory turnover, on time deliveries, and quality yields are major indicators for more than 50% of companies (Israelsen, *et al.* 1996). In Belgium (Bruggeman, *et al.* 1996) and in the Netherlands (Groot, 1996) while financial indicators are preferred, measures such as customer satisfaction, quality innovativeness are of increased use. In Greece as opposed to the above, non – financial indicators are not widely used and do not play a basic role in company's performance evaluation (Ballas and Venieris, 1996). This survey shall examine if the above statement continues to be valid or companies have changed their attitudes and to which direction. Chenhall and Langfield-Smith (1998c) discovered that firms who

placed great emphasis on product differentiation strategies benefited from the use of advanced MAP and reliance on non-financial information. Defect-rates, on-time delivery and machine utilization are some of the non-financial measures used by researchers who found a positive association between advanced MAP and these measures, (Banker *et al.*, 1993; Abernethy and Lillis, 1995; Perera *et al.*, 1997; Sim and Killough, 1998). This study after having some discussions with practitioners and academics during the piloting phase will use the following measures to measure operational performance: unit cost, quality – product, inventory turnover, customer satisfaction, speed of new product introduction, employee attitudes and morale.

3.4 CONTINGENCIES

Chenhall (2003) argues that studies should focus on important insights of adoption, use and usefulness of MAP, and should not be assumed that models specifically lead to better organizational performance. Also if performance is the dependent variable then additional theory is necessary to show how the combination of MA tools and context enable executives to decide more effectively and improve organizational performance. Chenhall and Langfield-Smith (1998a) found that a combination of MAP with certain management techniques and under various strategic priorities lead to the improvement of organizational performance. In the same study they suggest that further survey based research could target more focused combinations of strategy, management techniques and MA. Also attention should be given to the development of most effective ways of upgrading MAS to assist in achieving a holistic change.

Also this study draws on Baines and Langfield-Smith's (2003) findings where their final comments are that strategy, technology, organizational design and MAP do not impact independently either on reliance on non-financial MA information or on organizational performance. Rather, their conclusion acknowledges that each of these organizational factors work concurrently to influence other organizational factors and, as well as non-financial indicators and performance. This leads to the following alternative hypotheses:

H3. The association between the extent of use of MAP and relative improvement in financial performance is impacted by specific contingent factors and organizational characteristics.

With null hypothesis:

H3₀. The association between the extent of use of MAP and relative improvement in financial performance is not impacted by specific contingent factors and organizational

characteristics.

And

H4. The association between the extent of use of MAP and relative improvement in non financial performance is impacted by specific contingent factors and organizational characteristics.

With null hypothesis:

H4₀. The association between the extent of use of MAP and relative improvement in non financial performance is not impacted by specific contingent factors and organizational characteristics.

The specific enabling factors identified in this study through the extensive bibliographic review, as presented above (and the predicted direction of impact) are as follows:

- Management Techniques (+, positive)
- Other Influences (?, unknown)
- Business Philosophy (?, unknown)
- Basic Factors (?, unknown)
- Other Practices (+, positive)

3.5 SUMMARY

This model suggests that critical dimensions of MAP can be assessed by considering the influences by main external and internal contextual factors. Based on contingency theory and interpretive theory, MAP is expected to be associated with improved organizational performance under specific contextual conditions. Also it is expected that the model will present the “best” combinations of MAP (or most prevalent) that lead to superior company performance. Rejection of the null hypotheses would support the appropriateness of constructs and acceptance of alternative hypotheses. Also it would enhance credibility of both this part of the study and previous research by providing a tie between selective MAP practices and improvement in firm performance.

Chapter 4 – RESEARCH METHODOLOGY - QUESTIONNAIRE SURVEY

This chapter describes the methodology used in this dissertation and the whole chapter is about the questionnaire survey. The second method of analysis, the interview, is described further in chapter 6 - Interviews.

Once again this dissertation seeks insight into three broad issues:

- the relationship among MAP, internal and external contextual factors and firm performance (financial and non-financial),
- the implementation level and relative benefits gained from certain traditional and recently developed MAP and the intentions to emphasize in some certain MAP in the future,
- the reasons that managers select specific MAP and how these practices are influenced by the internal and external contingent factors.

The aforementioned issues first, will be explored through a questionnaire survey and second, will be analysed through a series of interviews. This chapter will describe the methodology used for the questionnaire survey.

Alvesson and Willmott (1996) and Alvesson and Deetz (2000) suggest that management research is similar to that used in the natural and physical sciences, whereas the assumptions on which this view is based have been challenged on at least three main grounds:

1. There is no single method which generates scientific knowledge in all cases.
2. What may be an appropriate method for researching the natural or physical world may be inappropriate in the social world given the inherent meaningfulness of management action and its contextual nature.
3. Knowledge generated is affected by the goals of managers and their validation criteria.

This research employs a cross-sectional design, drawing from a combination of quantitative and qualitative methods. Ideally, this study would also include longitudinal analysis over several years, in order to account for changes in managers' choices of MAP and to better assess the causal relationship between these choices and firm performance. Given the growing interest of practitioners in this topic and the lack of previous research in Greece, however, this study is a necessary first step toward understanding the important relationship among managers' selections of MAP, and the internal and external organizational effects which influence MAP, and eventually firm performance.

This study offers propositions based on previous theories, such as management accounting theory, interpretive theory, contingency theory and is deductive by nature. Gill and

Johnson (2002) suggest that theory-testing research draw upon multiple methods of data collection. This study relies on data collection based on questionnaires, interviews and data base – archival data comparisons. Yin suggests data triangulation and comparison for results to have greater construct validity, reliability and generalization (Yin, 1994, pp.90-100).

After analysing the questionnaire items, in order to have more reliable results this research is enriched with interviews from the same sample of companies participated in the questionnaire survey. The idea was to ascertain from practitioners' real life, what really happens, between the lines of the questionnaire, in the organizations involved. Further details are presented in the respective interview section.

The first section of this chapter describes a rationale for and overview of the survey research design. The second section discusses the sample and data collection. The third section presents the development and validation of the questionnaire. The final section reviews the methodological assumptions and limitations of this survey research part.

4.1 METHODOLOGY OVERVIEW

To test the hypotheses, the research surveyed 415 organizations in three main types of industries: manufacturing, services and commerce. Within each industry firms were selected to reflect a wide range of organizational performance. An empirical survey via questionnaires was conducted during 2006. The questionnaire was chosen for capturing data due to the fact that it can be used with objectivity and has an ample range. In its construction, the following factors were considered: which elements to research, in order to detail the components that could affect the formulation of the questions; consistency in analysis of the questions, sequence and jumps; and checking of the goals assumed to be reached from the piloting phase or pre-test. The survey questionnaire is attached in the Appendix 2. The questionnaire was originally translated in Greek with the help of the teaching staff of Athens University of Economics and Business mostly for terminology reasons and adapting the wording in Greek phraseology and mentality.

Also, this research is based on the rationale developed by Henry (Henry, 1990, pp.46-59), which links nature of the study, sample definition, variables of interest, subpopulations and source of information. In this way, this part of research will be prescriptive and analytical, based on primary data collected by the researcher. The unit of analysis is MAP, the benefits of which accrue at the firm level.

4.2 SAMPLE AND DATA COLLECTION

Researchers note that in a questionnaire survey the common data collection process involves five phases (Yin, 1994; Zikmund, 1997; Gill and Johnson, 2002). Adopting this framework this work was divided in the following phases. Phase one entailed industry background research to familiarize the research with key industry issues and characteristics. Phase two was the creation of the survey instrument, the questionnaire. Phase three involved pre-tests of the questionnaire and finalization of format. Phase four involved the distribution, follow up and collection of questionnaires. Phase five involved administration and analysis of the survey instrument results. This section discusses the industry and firm selection, the sample, the questionnaire, and also describes the pilot testing and data collection processes.

4.2.1 Industry selection

Sampling methods are classified as either probability or nonprobability. In probability samples, each member of the population has a known non-zero probability of being selected. Probability methods include random sampling, systematic sampling, and stratified sampling. In nonprobability sampling, members are selected from the population in some non-random manner. These include convenience sampling, judgment sampling, quota sampling, and snowball sampling.

The advantage of probability sampling is that sampling error can be calculated. Sampling error is the degree to which a sample might differ from the population. When inferring to the population, results are reported plus or minus the sampling error. In nonprobability sampling, the degree to which the sample differs from the population remains unknown. Random sampling is the purest form of probability sampling. Each member of the population has an equal and known chance of being selected. When there are very large populations, it is often difficult or impossible to identify every member of the population, so the pool of available subjects becomes biased, Walonick (2004).

This survey examines multiple firms in three general categories and for several reasons. Also the sampling method used is probability - random sampling.

First, this survey intent to focus on practitioners' choices of the internal and external attributes of a firm. A control, therefore, was necessary to mitigate the effects of industry environment on the proposed constructs. Second, analysis of the three industries allows for general, but important, comparison across subsamples for insight into systematic differences and similarities between industries. Finally, this sampling choice allows for richer assessments of MAP and contingent factor interaction on firm performance. Also multiple respondents per industry, combined with the insight of outside experts in each industry, provide valuable

opportunities for triangulation in that industry.

Thus, the surveyed sample comprised from companies in the manufacturing, commerce and service sectors. The choice of general categories was driven by several considerations. First, these categories offer a variety of contrasts on a number of dimensions, including firm output (product vs. service), prototypical organizational form (bureaucracy vs. craft), scope of market (global vs. local), and the role of government regulation. Second, each category is dynamic in nature, increasing the possibilities that the questionnaires in each category would reveal a wide variety and range of MAP, internal and external contingent factors within each industry. Third, firms within each category share enough similarities that an identified set of MAP and contingent factors could be detected by all participants within the category. Fourth, potential access to financial managers, financial controllers and senior management accountants, was very good. This criterion was non-trivial given the time demands of the data collection to the participating organizations (about 30 minutes time for completing the questionnaire items and maybe more).

4.2.2 Selection of Organizations

The sample of this research was the top 415 Greek companies which were selected from the ICAP list. ICAP S.A. is a Greek financial and business information company which issues various reports and statistics concerning all Greek industry sectors on an annual basis and is considered a very reliable source. Firms were selected based on the following criteria.

First, a firm should fit one of the three industry categories and be established enough in that category to be assessed by industry experts. Also companies from all public sectors were completely avoided because MAP in these organizations are very scarce and since are not profit oriented the respective performance indicators did not exist.

Second, with respect to size, the objective was to choose large and medium size companies, ranked by sales volume and manpower (number of employees), and examine whether they follow more or less the proposed tools and practices by modern and traditional management accounting theory, management science, and accept to become part of our research providing us all requested information. Sales revenues and manpower for the year 2005 were the main criteria for the sample selection.

Based on the sales revenue, firms should belong in the large (>40m euro) and medium-size (>5 and <40 m euro) categories. Concerning the manpower, firms should also belong in the large (>250 employees) and medium-size organizations (50-250 employees). This is because the small ones present some difficulties and, more important, these companies do not have the tools, information is rare, and in some cases, the available information is far from

reliable. In Greece, as anywhere else, larger companies are those expected to use most of the tools and practices proposed. The aforementioned classification is according to EU directive 96/280/EC 03-04-1966.

Concerning the suitability of the sample size most of researchers normally work to a 95 per cent level of accuracy. Taking into consideration the fact that the total number (population) of Greek private companies listed in ICAP SA with more than 50 employees and also between 5 and 40 million euro (i.e., the medium and large companies) are 415 out of the total 600 (ICAP SA, 2005), the sample of this research should be 196 companies at a 95 per cent level of confidence (Saunders, Lewis, and Thornhill, 2000, p.156).

4.2.3 The questionnaire

Gill and Johnson (2002) suggest a questionnaire survey format outline for research purposes. This format consists from four basic units: 1) determine questionnaire format, 2) fieldwork, 3) retrieval and analysis of data, 4) write up the findings and the rationale behind the research design (Gill and Johnson, 2002, p.115). Adopting this framework for this research the rest of this part will describe all actions taken to complete the questionnaire format.

1) Determine the questionnaire format: the purpose of this task was to prepare a questionnaire that was intelligible to respondents, minimize bias, and the data collected to be statistically calculated. The following four interrelated issues in questionnaire design were considered: i) questionnaire focus, ii) question phraseology, iii) the form of response and question sequencing, and iv) overall presentation. More analytically:

i) Questionnaire focus: the purpose here was to examine whether questions to be asked covered the various aspects of the research area adequately and sufficiently. It was assured to elicit data on all the important variables. This way, there is better theory testing by better statistical analysis for the independent and dependent variables. Also it assured that most questions asked they were related to the hypotheses and research problems. Therefore, the main questions asked were:

- Whether MAP were related to any relative benefits gained from the respective practice;
- Whether each contingency enabled or disabled the implementation of MAP in the respondents' organization;
- Whether the respondents' firm performance indicators were above the average of their respective industry average.

ii) Phraseology: phraseology is used to describe whether questions are coherent to respondents. A significant aid for judging this issue was provided by feedback from the pilot

study, more details on this issue will be presented later on in this section. The following considerations were reviewed in reference with the characteristics of the population of 415 firms. First, it was attempted to reveal the clear research purposes to the participants asking for their cooperation without biasing for subsequent responses. Second, it was assured that the participants received clear and unambiguous instructions. For both questions (A and B) accurate instructions were included in the introductory letter and the first page of the questionnaire, see the appendices 1 and 5. Third, it was ensured that the questions were easy to understand, were free of jargon and inappropriate assumptions. For this purpose a special terminology section was added in the back of questionnaire and includes the description of all terms of MAP and rest of other terms. The explanation of terms was collected from the modern management accounting bibliography and respective reliable internet addresses. Fourth, it was noted that the respondents should be qualified to possess the necessary information and knowledge to answer the questions, therefore the questionnaires were addressed in priority to financial managers, financial controllers, and senior management accountants. It was assumed that practitioners in these positions were very well aware of their firms' structures and in the position to answer the questionnaire. It was also assumed that the higher the professional status of the executive who participated the higher the reliability of the responses received. Fifth, the questions were very clear, not offensive, insensitive or embarrassing. Last, it was ensured the wording of the questions did not lead to bias by leading the participant to specific answers or assumptions.

Attempting to ensure clear and coherent questions, construct validity and reliability the question content and wording were adopted from previous researchers and modified according to practitioners, academics and management consultants to fit the mentality and needs of the Greek industry.

Thus, for the question A, all items for the first four MA tools (PB, DS, CA, and PE) were adopted from Chenhall and Langfield-Smith, (1998). Items for the SMA tools category were adopted from Guilding *et al.* (2000). The items presented to practitioners in their original form but a few of them were dismissed by them during the piloting phase. These are noted in the respective paragraph 3.1.2 above. Also participants for all five MAP categories were asked to answer the question "Practicing the following techniques over the last three years your organization gained some significant benefits". The question was adopted from Chenhall and Langfield-Smith (1998) and it was modified to adapt to the needs of this survey and in accordance to practitioners' remarks during the piloting phase. It had to be assured that the question's philosophy fit practically the alternative hypotheses 1 and 2. Also this question is a useful tool of analysis for measuring the degree of practice and relative benefits gained of each

MA tool in Greece. The analysis also presents evidence regarding the use of traditional and currently developed MA tools whether are beneficial and predicts future trends in MA tools preference. The results of these later measurements are presented in detail in Tables A1-A7 in Appendix 3.

For the questions B, C, D, E, (contingencies: B: other practices; C: other influences; D: management techniques; E: basic factors) used the same phraseology for all four questions. Participants were asked to answer the question “The following ... (contingency)... has positively affected the use of management accounting practices in your organization”. The wording of the question was adopted from Chenhall and Langfield-Smith (1998) and it was modified to adapt to the needs of this survey and in accordance to practitioners’ remarks during the piloting phase. It had to be assured that the question’s philosophy fit practically the alternative hypotheses 3 and 4. The items in each one of the aforementioned questions (B,C,D,E) were adopted from other researchers, see Appendix 1, and were modified to adapt to the needs of this survey and in accordance to practitioners’ remarks during the piloting phase.

For the question F (contingency: business philosophy) participants were asked “Do you agree with the following statements as part of your business philosophy?” It was necessary to include this category as well just to analyse the participant’s firm character, their dynamism, and how this situation reflected to firm’s performance. Items were taken from various researchers; see Appendix 1, also in par.3.1.2 in the Business Philosophy (BUS.PHI) section.

Question G1 refers to control variable TIME. Participants were asked how long since their business began to implement the MA tolls; to use the MA tools in decision making; to use the MA tools in quality improvement programme. The purpose for using this variable was to examine the length of time and its effect on MAP and firm performance. The items of this variable adopted from Cagwin and Bouman (2002).

Also one important question is question G2 because is related to firms’ performance. Participants were asked “The following performance indicators of your company for the last 3 years have been improved and are above the average of your industry”. The wording of the question was adopted from Cagwin and Bouwman (2002) and was modified to adapt to the needs of this survey and in accordance to practitioners’ remarks during the piloting phase. It had to be assured that the question’s philosophy fit practically the hypotheses 1 and 2. This study, like many others attempt to connect various initiatives to financial and non-financial performance, relies on self reported measure of performance. Many researchers in the past have asked practitioners to evaluate their business performance relative to competition over the last three (3) years (Govindarajan, 1998; Govindarajan and Fisher, 1990; Chenhall and Langfield-Smith, 1998b; Cagwin and Bouwman, 2002). Young (1996) argues that self

reported performance is not necessarily a valid representation of real performance. Also, they have been cases where significant discrepancies were noted in financial figures extracted from archival data (Kern and Morris, 1994); similar problems were reported in other research limiting the ability to compute accurate industry mean-adjusted variables (Ong and Jensen, 1994). In general, management accounting research has been silent in this issue (Young, 1996).

Attempting to increase the reliability of this study and in order to evaluate the accuracy of self-reported measures, all sets of responses of this study were compared with the actual financial statement information retrieved from ICAP. T-tests comparing sales and manpower figures for the years 2003-2005 revealed no significant ($p < .10$) differences between actual and self-reported data. Based on these results the rest of the self-reported figures expected to have trivial deviations from the real ones.

Questions G3 and G6 refer to control variable TYPE. In question G3 participants were asked to declare whether their organization belongs to one of the following types: adaptive, running blind, stagnant, and whether this situation positively affects the use of MAP. Also in G6 to declare the category of industry where their firm belongs: industry – commerce – services. The purpose for using this variable was to examine whether the type of business plays an important role in MAP implementation and firm performance. The items of this variable were adopted from Reid and Smith (2000) and Cagwin and Bouwman (2002).

Questions G4 and G5 refer to control variable SIZE. Participants were asked to declare their annual sales and employee numbers. The purpose for using this variable was to examine whether size plays an important role in MAP implementation and firm performance. The item of this variable was adopted from Krumwiede (1996).

The rest of questions are there for statistical purposes. Results from these items are presented in chapters 5 and 6.

iii) The form of response: Special attention was provided to the form of response because data collected later on should be in a form for subsequent analysis. It was ensured that measures of the variables important to the research problem were built into the questionnaire by asking questions in an appropriate way and providing an appropriate response form. It was also assured that the questions would provide data appropriate for statistical analysis intended to be used, taking into consideration the reliability and validity of measurement scales which were included in the questionnaire design.

iv) Question sequencing and overall presentation: The final part in the design of the questionnaire format was the question sequencing. This was necessary since this survey used a postal self-completion questionnaire. It was assured questions to have a natural and logical

order so respondents to have a contextual continuance in their mind so responding would be more convenient. Therefore questions representing the respective variables were presented in the following order in the questionnaire: MA tools (PB tools, DS tools, CA tools, PE tools, and SMA tools), contingent factors (other practices, other influences, management techniques, basic factors, and business philosophy), control variables (time, type, size), performance indicators, and general questions. Aiming in a high response rate special attention was given to the overall presentation, conciseness, simplicity and attractiveness of the design. Then the questionnaire accompanied by a cover letter and a stamped, addressed envelope for its return.

2) *Fieldwork:* Regardless the kind of research method, postal questionnaire, e-mails or interviews it is fundamental to start the fieldwork by conducting a pilot study. In this research two pilot studies were conducted one for the questionnaire and one for the interview. This section will describe the pilot study which related to survey questionnaire.

Piloting is mandatory in order to investigate the reaction and interpretation of respondents to the questionnaire and realize the level of understanding. Conducting a pilot research before the final survey allows any significant problems in the first version questionnaire to be identified and corrected (Gill and Johnson, 2002). The pilot study was reckoned as a vital step before the final format of the questionnaire because it is very difficult to predict how practitioners would interpret and react to questions and more important to the terms, whether they were familiar with them, etc. Conducting a pilot study allowed any main problems in the proforma questionnaire to be identified and corrected. A necessary step before issuing the proforma questionnaire was the translation of the proforma from English to Greek. Thus, translation problems for the main questions rose from the beginning of this pilot study because the translation really changed the meaning or produced meaningless sentences to practitioners, academics and management consultants. Same difficulties were identified to several terms especially in questions A and B, thus the need raised for an additional glossary on special terminology. A terminology list is attached at the end of the questionnaire, see Appendix 2. More specifically, after the appropriate arrangements and contacts, a full translated questionnaire was sent to fifteen randomly selected companies from the target population of each sector, two out of the big four management consulting firms and two universities in order to realize whether people involved understood the structure and meaning of questions and the logic behind them. Additional phone conversations with these practitioners and academics were scheduled to discuss further details and corrections. When questionnaires received back and after the appropriate corrections were made, proper final form questionnaires were sent to sample companies. Questionnaires were sent by post, including a cover letter and a pre-paid reply envelope. (Survey cover letter, see Appendix 5).

3) Retrieval and analysis of data: Regarding collection of data from 415 companies, 214 returned the questionnaire which corresponds to 51.57% response rate. After excluding 16 incomplete questionnaires, a total of 198 questionnaires (or 48%) retained for analysis. From the rest of 198 companies 26.8% belongs to the manufacturing industry, 26.3% to services and the rest 47.0% is commerce. The 53% is listed on the Athens Stock Exchange (ASE), from the firms in services 73% is listed on the ASE, the respective percent for the commerce is only 39%. For the year 2005 the average sales turnover was 286.492.097 Euro and employed on average 888 employees. As far as size, 6.6% belongs to small, 29.8% medium-small and 63% as large. In the large enterprises the allocation in regards of industry is almost the same, while in medium-small and small the majority is taken by the commercial ones with 74.6% and 84.6% respectively. The Finance Department of the 68.2% has employed 1-2 management accountants, while the 23.7% employed 3-4 management accountants. From the total of management accountants the 53.5% hold a university degree, while 44.9% have a postgraduate degree. The questionnaire was completed by 46% financial managers, 35.9% financial controllers, and 17.25% senior management accountants. From them 30.8% have an average experience from 4-6 years, 32.8% from 7-9 years, and 24.7% from 10 – 13 years, and last 19.6% more than 15 years, rest of demographic data see Table 4.1.

4) The last part of the questionnaire survey procedure, write up the findings and the rationale behind the research design, is presented in chapter 5.

4.3 DEVELOPMENT AND VALIDATION OF QUESTIONNAIRE

As already mentioned above the questionnaire was the main research instrument to achieve the following purposes. Initially the main task was the assessment of the degree of implementation of various practices and in the measurement of any diversification in the degree of implementation from different sectors. Also another task was the performance measurement of each company in comparison with the average of the respective business sector. Since one of the main purposes of this research was the hypotheses testing concerning the MAP impact in organizational performance, this could be done easier by reducing the total number of items used to those with the highest influence on the firm's performance using the appropriate statistical techniques (explained in detail on section 4.3.2). Thus, we could have better statistically accepted results.

Table 4.1: Demographic Data

<u>Company classification</u>			
Manufacturing	53	<u>Position of Respondent</u>	
Services	52	Financial Manager	91
Commerce	93	Financial Controller	71
Total sample	198	Sr Management Accountant	34
<u>Listed in Athens Stock Exchange</u>		Sr Accountant	1
Listed	105	Accountant	1
Non Listed	93	Total sample	198
Total sample	198		
<u>Size of Organizations:</u>		<u>Size of Organizations:</u>	
<i>Turnover - m Euro</i>		<i>Manpower – employees</i>	
0-300	149	0-200	67
301-600	36	201-500	57
601-900	7	501-1000	34
901-1,000	2	1001-2500	29
1,001-2,000	3	2501-7000	8
2,001-3,500	1	7001+	3
Total sample	198	Total sample	198
<u>According to EU statistics</u>		<u>According to EU statistics</u>	
<=5m (small)	0	<50 employees (small)	13
>5m and <=40m (medium)	9	50-250 employees (medium)	62
>40m (large)	189	>250 employees (large)	123
Total sample	198	Total sample	198

4.3.1 Theoretical framework and item generation

Attempting to develop the questionnaire, the concept under measurement has to be carefully defined (Churchill, 1979). The conceptual framework in which the questionnaire is based, created as a result of extensive research studies which have examined the sense, use and practice of the following fields.

- 1) Management accounting practices (MAP): Also referred as methods, tools, techniques, questions unit A, categories 1-5. In this group are presented most of the traditional and recently developed MAP. They were grouped and adopted from various studies and necessary alterations were made in order to adapt in the Greek industry and mentality.
- 2) Internal and external contingent factors: Other Practices (unit B), Other Influences (unit C), Management Techniques (unit D), Basic Factors (unit E), Business Philosophy (unit F). In these questions presented the most familiar contingencies which affect business practice in general.
- 3) Organizational characteristics (unit G): Time (subunit G1), Type (subunit G3 and question G6), Size (questions G4 and G5). This group consists from typical organizational characteristics.

- 4) Performance Measurement (unit G2). Consists from various performance indicators and appropriate grouping is performed in order to adapt to Greek standards.

For further information and references about each group, see Table in Appendix 1.

The questionnaire aims in the investigation of any diffusion and expansion of various traditional and more recently developed MAP in Greece and also in the detection of diversification of practices between the sectors and mainly in the determination of interaction of these groups of tools (in combination with various internal and external contingencies) on company's performance. Therefore seven conceptual groups were created. After the determination of the groups a base of questions was made based in three sources, first the existing bibliography, second the scientific experience of some academics, and third the professional experience of practitioners. All questions were a mix of the three above sources (articles, papers, personal interviews and discussions, comments, etc.) and were adapted to Greek reality standards. Then the total number of selected questions was subject to subsequent tests which collected data from the Greek industry and described further down. Piloting was described in the beginning of this section. After the final alterations, the questionnaire took its final structure and sent to 415 companies.

Table 4.2: Initial units of the Questionnaire

Units	Subunits	Description	N of Items
A		Includes the significant benefits gained from practicing the various MAP in the companies sampled.	57
	A1	Includes the Planning and Budgeting Tools	16
	A2	Includes the Decision Support Tools	12
	A3	Includes the Cost Analysis Tools	7
	A4	Includes the Performance Evaluation Tools	12
	A5	Includes the Strategic Management Accounting Tools	10
B		Refers to Other Practices which have positively affected the use MAP	8
C		Refers to Other Influences which have positively affected the use MAP	10
D		Refers to Management Techniques which have positively affected the use MAP	14
E		Refers to Basic Factors which have positively affected the use MAP	5
F		Describes the Business Philosophy which prevails in each company resulting in change of business practices	10
G		General Questions	40
	G1	Time	15
	G2	List of Performance Indicators of each company	14
	G2.1	Market Performance (Financial Performance)	4
	G2.2	Corporate Performance (Financial Performance)	4
	G2.3	Operational Performance (Non-Financial Performance)	6
	G3	Type	3
	G4-G11	Other questions about the companies	8
	Total		144

In the Table, 4.2, the seven units, a short description and the total number of questions per unit are described. The complete questionnaire is attached in Appendix 2. The questionnaire was addressed with priority to Financial Managers and the following positions: Financial Controllers, Senior Management Accountants, Senior Accountants, Management Accountants, and Accountants, as more appropriate positions in Greece to answer the questionnaire.

For answering the questions, of group A, B, C, D, E, and F, they were placed as statements and a Likert scale was used from 1 to 5, where 1=Strongly Disagree and 5=Strongly Agree. For evaluating performance (part G2) also the Likert scale was used where 1=Much worse than average (of industry) and 5= Much better than average (of industry).

4.3.2 Scale Purification

As already mentioned above in order to achieve the primary goal of this research which is the testing of hypotheses, a reduction of items was performed, following an appropriate method which is described thereupon.

Table 4.3: Removed units of the Questionnaire

Units	Initial number of items	Number of removed items	Final number of items	Coefficient α^a	Coefficient α^b
A1.1	1	0	1	X ^c	X ^c
A1.2	5	2	3	0.444	0.655
A1.3	2	2	0	0.016	X ^c
A1.4	1	0	1	X ^c	X ^c
A1.5	7	4	3	0.594	0.633
A2.1	4	2	2	0.471	0.644
A2.2	4	4	0	0.243	X ^c
A2.3	2	2	0	0.230	X ^c
A2.4	1	0	1	X ^c	X ^c
A2.5	1	0	1	X ^c	X ^c
A.3	7	3	4	0.464	0.703
A.4	12	3	9	0.799	0.860
A.5	10	0	10	0.860	0.860
B	8	1	7	0.832	0.852
C	10	6	4	0.649	0.672
D	14	7	7	0.686	0.770
E	5	5	0	0.273	X ^c
F	10	9	1	0.315	X ^c
G2.1	4	0	4	0.811	0.811
G2.2	4	0	4	0.847	0.847
G2.3	6	0	6	0.853	0.853
Total	118	50	68		

^a α before eliminations, ^b α after eliminations, ^cnot computed

An important note here is that all items carry equal weight in the analysis, this was necessary in order to avoid any bias in manipulating the data. For the validation of questionnaire were followed, to a large extent, the steps which propose DeVellis (1991)

and Hinkin *et al.*, (1997). Churchill (1979) suggested that the purification of questionnaire should begin with the computation of the coefficient α . Cronbach's coefficient alpha (α) is a widely used measure of scale reliability (Cronbach, 1951). From Nunnally (1978) and Spector (1992) suggested the value of α coefficient to be at least 0.70. In our case the coefficient is calculated for the five subunits of unit A and units B, C, D, E, F and G2.

Especially, in the case of subunits A, the coefficient α was calculated for every method separately. The total number of items of all units was 118. The value of the coefficient α , ranged from 0.016 to 0.860 for all the underlying dimensions and this implied that it was necessary to remove some items from each dimension to improve the value of α . Fifty (50) items were discarded with corrected item- to- total correlation lower than 0.30 (Churchill, 1979). Therefore after removing 50 items, Table 4.3, the coefficient α was calculated from the beginning and the new values ranging from 0.633 to 0.860.

Table 4.4: Final units of the Questionnaire

Units	Initial number of items	Number of removed items	Final number of items	KMO ^a	KMO ^b	T.V.E ^c	Coefficient α ^d
A1.2	3	0	3	0.655	0.655	59.462%	0.655
A.1.5	3	0	3	0.565	0.565	58.038%	0.633
A2.1	2	0	2	0.500	0.500	74.173%	0.644
A3	4	0	4	0.572	0.572	53.689%	0.703
A4	9	0	9	0.832	0.832	48.640%	0.860
A5	10	2	8	0.695	0.705	67.116%	0.812
B	7	3	4	0.604	0.748	60.579%	0.852
C	4	0	4	0.682	0.682	48.030%	0.672
D	7	4	3	0.640	0.661	62.566%	0.770
G2.1	4	0	4	0.750	0.750	64.049%	0.811
G2.2	4	0	4	0.770	0.770	68.768%	0.847
G2.3	6	0	6	0.874	0.874	58.366%	0.853
Total	63	9	54				

^aKMO before eliminations, ^bKMO after eliminations,

^cT.V.E (total variance explained) after eliminations, ^dafter eliminations.

Then, the data were subjected to exploratory factor analysis (E.F.A) in order to verify and validate the construct of the remaining 68 items and to further reduce the number of them (Chu and Murrmann, 2006). E.F.A was performed for each unit and subunit, to quantify the degree of intercorrelations among the items and the appropriateness of E.F.A. For this reason two statistics were used, the Kaiser – Mayer - Olkin (KMO) measure and Bartlett's test of sphericity, a statistical test for the presence of correlations among the items (Hair *et al.*, 1998).

For the extraction of factors the principal component method was selected and as criterion for formation of the constructs, eigenvalues greater than 1. Finally, one of the most popular orthogonal factor rotation methods, was used the varimax rotation.

In total, 12 factor analyses were performed, for every unit in which the E.F.A is appropriate. After the first factor analysis, in order to improve the results, all items which loaded equally to more than one factors were removed. Also items which their loadings were less than 0.45 were removed as suggested by Hair *et al.* (1998) for a sample of 150-199 individuals. With this procedure a total of 9 items were eliminated. For the remaining 54 items we run again 12 E.F.A from which derived a factor solution which explain between 48.030%, that is marginally accepted and 74.17% of variation. The K.M.O measure with values between 0.500 and 0.874 although is not bigger than the minimum of 0.8 which is suggested by Sharma (1996), can be accepted according to Hair *et al.* (1998) who set a minimum of 0.5. Bartlett's test of sphericity was significant at a 0.00 level for all E.F.A performed. Finally, the loadings of all variables in the respective factors are greater than 0.45. In the Table below we can see the results from the first and second E.F.A.

4.3.3 Reliability and Validity of Scale

The reliability which refers to internal consistency of each factor and is one of the most important measures for evaluating research instruments is calculated with the use of coefficient α . The coefficients of reliability of the correlated variables (factors) were fluctuated between 0.633 and up to 0.853 showing that the internal consistency of factors is good. In Table 4.4 there is an analytical presentation of coefficients α for each factor. Besides the reliability of data, where α high value is necessary but not sufficient condition for a valid scale (Chu and Murrmann, 2006), it is necessary to check the validity as well. Validity refers to extent where the variables measure exactly what has to be measured (Hair *et al.*, 1998). The most common form of validity is the validity of content (Zikmund, 1997) which in sum refers to the acceptance from practitioners that the variables proposed are appropriate to measure and test the concept or hypothesis in question. Academics and practitioners of management accounting were asked to give their professional opinion for the constructs created after the factor analysis and the majority agreed that the variable content is appropriate and their concept is suitable for the respective factors. SPSS 12 was the statistical software employed for all aforementioned analyses.

CHAPTER 5 – QUESTIONNAIRE SURVEY - RESULTS

To structure the analysis of findings this section is divided in four parts. The first part presents the findings in relation only to management accounting practice or MA tools. The second part presents all other contingent external and internal organizational factors which affect the implementation of MA tools. The third part presents information on organization improvement. The fourth part presents the MAP model and the respective hypotheses testing.

5.1 MANAGEMENT ACCOUNTING IN GREECE

To help the analysis of management accounting practice the findings are divided in four parts. First, is the general findings and general analysis part. Then attempting to present a conceptual grouping, MA tools were grouped into three main categories: performance evaluation practices (financial and non-financial), planning practices (short and long term) and strategically oriented practices.¹ Also analysis is presented in two basic MAP categories, traditional and recently developed ones, which ones are more beneficial for the practitioners and what is the future trend.

5.1.1 General Findings

As mentioned in previous sections MAP refers to five categories of practices - tools in section A of the questionnaire. These categories are Planning and Budgeting Tools (PB Tools), Decision Support Tools (DS Tools), Cost Analysis Tools (CA Tools), Performance Evaluation Tools (PE Tools), and Strategic Management Accounting Tools (SMA Tools).

Questionnaire findings and Tables are presented in Appendix 3, Tables A1 to A7.

Table A1 ranks the items according to their average (mean value) significant benefits received from using each MAP in the last 3 years. The most beneficial MAP found were mainly Budgeting – Detail budgeting systems for controlling cost (Mean 4.60) – PB Tools, Decision support systems – Product profitability analysis (4.44) – DS Tools, Performance evaluation based on – Budget variance analysis (4.43) – PE Tools. On the opposite site are those practices which give the organizations tested the least benefits, and these are: Brand value budgeting and monitoring (3.67) – SMA Tools, Value chain

¹ The classification of performance evaluation practices (financial and non-financial), planning practices (short and long term) and strategically oriented practices was adopted and modified from Chenhall and Langfield-Smith (1998b;1998c).

analysis (3.57) – SMA Tools, and Strategic plans developed - Separate from budgets (2.93) – PB Tools.

Standard deviations are provided to show the extent of diversity of responses. In every case the Coefficient of Variation is big (>10%), which means that there is a big variation, among the companies sampled, in the appreciation of benefits gained from the MAP practiced. Table A2 presents the companies' preferences regarding past use of MAP. Fifteen practices were adopted by 90% of the sample and sixteen practices, more or less the same, will continue to enjoy the favor of companies for the next three years. A further ten practices were adopted by at least 80% of companies. The respective number for future use in this percent category is seven practices. All but two items were used by at least 50% of respondents in the sample.

The techniques which are mostly adopted by the majority of the sampled firms are: Formal strategic planning 100%, Detail budgeting systems for: Planning - Cash flows 100%, Detail budgeting systems for: Controlling Costs 99%. On the bottom part of the Table are the techniques used less and these are Strategic Man. Accounting: Value chain analysis 55%, Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures) 48%, Cost analysis: Process Costing 45%.

From ANOVA Table (Table A3), can be concluded that for many practices there is a significant difference among companies - sectors in the degree of appreciation of the benefits gained. Statistically significant difference among sectors exists when Sig. is less than 0.05. Having Industry as a control variable for example the differences are for the practices in **bold** in Table A3.

Table A4 presents the perceived benefits per sector by practicing the various MAP. First is Commerce 29, second Services 17, and last Manufacturing 11.

5.1.2 Conceptual survey analysis

The previous section presented a general prevention of the practices found. In this section in order to present the same findings in a more conceptual framework and according to the classification of Chenhall and Langfield-Smith (1998c) the following MAP structure is adopted:

- performance evaluation practices (financial (F) and non-financial (NF)),
- planning practices (short term (P) and long term (P LT)),
- strategically oriented practices (SP).

In order to structure our analysis we adopt and modify the classification of Chenhall and Langfield-Smith (1998c) regarding ranking and grouping classification. Therefore in

Table A1 the items, in terms of significance, are divided into three groups according to ranking: the first 20 items (ranked 1-14) classified as significant benefits gained, the next 20 items (ranked 15-28) as medium benefits gained, and the remaining 17 items (ranked 29-42) as low benefits gained. Similarly, the items in Table A2 are divided into three groups according to ranking: the first 20 items (ranked 1-12) classified as of high implementation, the next 20 items (ranked 13-22) as of medium implementation, and the remaining 17 items (ranked 23-35) as of low implementation.

In order to lead our analysis to the aforementioned framework the information in the abovementioned Tables A1 and A2 is rearranged and two new Tables were created, Table A5 and Table A6.

Table A5 presents each management accounting practice (MAP) which is ranked in order of the percentage of respondents who indicated their organization had used the practice. Items are also classified as the five aforementioned MAP groups and also as contemporary or traditional practice.²

Table A6 the left part lists the items in order of the significant average benefits received from using each practice during the past 3 years while the right part refers to the future emphasis that companies are willing to give. Standard deviations (SD) are given in order to present the diversity of responses. All above classifications are necessary in order to create a basis to compare, first the level of relative implementation of practices across the sample and then the benefits derived from each item by practitioners. Also same classifications with Table A5 were followed regarding the MAP groupings and contemporary or traditional practices. The classification scheme is not meant to imply that implementation (or benefits) is either high or low in any absolute sense. For example, most items in low implementation group were used by more than 50% of the sample. Also, the rankings of items on implementation (Table A5) and benefits received (Table A6) do not necessarily correlate.

Table A7 refers to increased and decreased rankings of future emphasis, by this listing it is attempted to detect a trend in future practices.

Performance Evaluation Practices

Performance evaluation is a significant task of management accounting (Emmanuel *et al.*, 1990). Special attention has been assigned to the benefits derived from financial compared to non-financial measures (Lynch and Cross, 1992).

² The classification between contemporary and traditional practices was adopted and modified from Chenhall and Langfield-Smith (1998c).

Financial Measures (Practices)

Various researchers have presented evidence that financial measures of performance are very important in many countries (Ballas and Venieris, 1996; Israelsen *et al.*, 1996; Bhimani, 1996, Chenhall and Langfield-Smith, 1998; Bhimani and Langfield-Smith, 2007).

The findings of the current study confirm the importance, in Greece, of financial measures of performance. Table A5 presents relatively high implementation rates for Detail budgeting systems for: Controlling costs (ranked equal 2), Performance evaluation is based on: Budget variance analysis (ranked 3), Performance evaluation is based on: Return (profit) on investment (ranked 5), Detail budgeting systems for: Planning – Operational Budgeting (ranked 9), Decision support systems: Product profitability analysis (ranked 9), Performance evaluation is based on: Divisional profit (ranked 11), Performance evaluation is based on: Controllable profit (ranked 20) and low implementation was for: Performance evaluation is based on: Residual income (e.g. interested adjusted profit) (ranked 31)

The importance of these practices is confirmed when examining the benefits gained from these techniques. In Table A6 are presented the significant benefits received by practicing various traditional techniques such as: Detail budgeting systems for: Controlling costs (ranked 1), Decision support systems: Product profitability analysis (ranked 2), Performance evaluation is based on: Budget variance analysis (ranked 3), Performance evaluation is based on: Return (profit) on investment (ranked 5), Detail budgeting systems for: Planning – Operational Budgeting (ranked 10), Performance evaluation is based on: Controllable profit (ranked 13), Performance evaluation is based on: Divisional profit (ranked 14). Low benefits were reported for Performance evaluation is based on: Residual income (e.g. interested adjusted profit) (ranked 36).

Non-Financial Measures (Practices)

Table A5 presents that non-financial measures were included in mainly high and medium categories of implementation. Thus, in the high implementation category were: Detail budgeting systems for: Compensating managers (ranked 2), Performance evaluation is based on: Customer satisfaction surveys (ranked 4), Performance evaluation is based on: Qualitative measures (ranked 6), Performance evaluation is based on: Employee attitudes (ranked 12). In medium implementation category were: Performance evaluation is based on: Team performance (ranked 14), Performance evaluation is based on: Ongoing supplier evaluations (ranked 14), Performance evaluation is based on: Non – financial measures

(ranked 18), while in low implementation category was the Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures) (ranked 34). These items could be used in areas of strategic importance (McNair and Mosconi, 1989; Lynch and Cross 1992).

The importance of these practices is also confirmed when examining the benefits gained from these techniques. Thus in Table A6 presented the benefits gained for practicing non-financial techniques which in this case represent all kinds of importance. Hence, of high significant importance were the: Performance evaluation is based on: Customer satisfaction surveys (ranked 6), Performance evaluation is based on: Ongoing supplier evaluations (ranked 11). Of medium benefits were: Performance evaluation is based on: Qualitative measures (ranked 19), Detail budgeting systems for: Compensating managers (ranked 24), and of low benefits received were the Performance evaluation is based on: Team performance (ranked 32), Performance evaluation is based on: Employee attitudes (ranked 34), Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures) (ranked 35), Performance evaluation is based on: Non – financial measures (ranked 39).

Summarizing, the findings suggest that financial performance measures continue to be an important part of management accounting practice in Greek firms supplemented with a variety of non-financial ones. Ballas and Venieris (1996) had reported a similar situation for Greece regarding financial and non-financial measures with financial measures to be of high importance for the companies.

Planning Practices

Besides performance evaluation, management accounting provides information for planning (Emmanuel *et al.*, 1990). The main techniques for this task are, first, budgeting for short term resource planning, second, capital budgeting and strategic planning for the long term. In Table A5 presented twenty traditional planning techniques of various importance of implementation and includes eleven short term practices, five concerned with budgeting and decision support systems and six with costing, and nine with long term planning. The budgeting practices of high implementation importance were: Detail budgeting systems for: Planning - Cash flows (ranked 1), Detail budgeting systems for: Planning - Financial position (ranked 10). Of medium implementation importance were: Detail budgeting systems for: Planning - Day-to-day operations (ranked 15), Operations research techniques (ranked 18), Cost analysis: Standard Costing (ranked 21), Decision support systems: Cost volume profit analysis (e.g. breakeven analysis) (ranked 22), Cost

analysis: Project Costing (ranked 24).

Of low implementation importance were: Cost analysis: Marginal / Direct Costing (ranked 27), Cost analysis: Job Order Costing (ranked 28), Cost analysis: Absorption or Full costing (ranked 29), Cost analysis: Process Costing (ranked 35).

Techniques concerned with the long term were, of high implementation rates, Formal strategic planning (ranked 1), Strategic Plans Developed: Together with budgets (ranked 7), Long Range Forecasting (ranked 8), Capital Budgeting: Net present value (NPV) (ranked 9), Capital Budgeting: Return on Investment (ROI) (ranked 12). Of medium implementation importance were the techniques: Capital Budgeting: Payback period (ranked 13), Strategic Plans Developed: Separate from budgets (ranked 18), Capital Budgeting: Internal rate of return (IRR) (ranked 19). Of low implementation importance was the tool: Capital Budgeting: NPV sensitivity analysis (ranked 26).

The importance of significant benefits received is reported in Table A6. Thus of significant benefits received were: Cost analysis: Absorption or Full costing (ranked 6), Detail budgeting systems for: Planning - Day-to-day operations (ranked 7), Detail budgeting systems for: Planning - Cash flows (ranked 8), Cost analysis: Job Order Costing (ranked 9), Cost analysis: Project Costing (ranked 9), Decision support systems: Cost volume profit analysis (e.g. breakeven analysis) (ranked 12). Of medium benefits received were Detail budgeting systems for: Planning - Financial position (ranked 22), Cost analysis: Standard Costing (ranked 23), Operations research techniques (ranked 28). Of low benefits received were: Cost analysis: Process Costing (ranked 30), Cost analysis: Marginal / Direct Costing (ranked 33).

For long term planning techniques of significant benefits received were: Formal strategic planning (ranked 6), Strategic Plans Developed: Together with budgets (ranked 7), Capital Budgeting: Net present value (NPV) (ranked 11). Of medium benefits received were: Long Range Forecasting (ranked 15), Capital Budgeting: Return on Investment (ROI) (ranked 16), Capital Budgeting: Internal rate of return (IRR) (ranked 18), Capital Budgeting: Payback period (ranked 21). Of low benefits received were: Capital Budgeting: NPV sensitivity analysis (ranked 29), and Strategic Plans Developed: Separate from budgets (ranked 42).

These findings suggest that both formal strategic planning and traditional budgeting systems provide high benefits for the organizations. Relatively moderate benefits were reported for long range forecasting which usually supports strategic planning. Also these findings support the view that strategic planning is implemented by many companies and contrasts with an older view that formal strategic planning is not implemented enough and

does not improve performance (Mintzberg, 1994; Carr and Tomkins, 1996).

Strategically focused practices

In the late eighties and during the nineties many researchers drew on traditional management accounting methods claiming that they are not appropriate for the rapid changes which occur in global competition, and technology. Also are not compatible with new administrative practices such as just in time, quality management, etc (Cooper, 1998; Bromwich and Bhimani, 1994). Lately developed methods including product life cycle, target costing, value chain analysis, activity based costing, benchmarking and shareholder analysis are presented as the missing links between operations and organizational strategies and objectives.

In the last twenty years activity-based costing (ABC) has been one of the most popular costing tools helping to realize how companies' resources allocated across the value chain to produce strategic outcomes (Shank and Govindarajan, 1993). In the beginning the adoption rates were slow but later on, mostly companies in UK and US started to adopt it more (Shim and Sudit, 1995; Innes and Mitchel, 1995; Evans and Ashworth, 1996). Ballas and Venieris (1996) reported that by that time activity-based methods were not implemented in Greece. Later on Cohen *et al.* (2005) reported that in Greece there is an increasing rate of ABC adoption in recent years; also companies which implement ABC do not use it as a mean to improve cost measurement accuracy but rather as a management tool with multiple functions.

The conventional management accounting systems do not provide a long term, future oriented emphasis, and is not oriented towards marketing or competition. Here comes the strategic management accounting (SMA) to give a long term orientation. Simmonds defined SMA as "the provision and analysis of management accounting data about a business and its competitors for use in developing and monitoring the business strategy" (Simmonds, 1981, p.26). He claims that profits are generated not from internal efficiencies but from the company's competitive positioning in the respective market. Govindarajan and Shank (1992) referred to term "Strategic Cost Management" (a relationship between strategy and management accounting) which Shank described it as "the managerial use of cost information explicitly directed at one or more of the four stages of the strategic management cycle" (Shank, 1989, p.50). The four stages are: strategy formulation, strategy communication, strategy implementation and strategic control.

The evidence from the current study, Table A5, ranked the implementation of ABC methods as relatively medium and low: activity based costing (ranked 22), activity based

management (ranked 27), but Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets) is highly adopted (ranked 3) mainly due to budgeting and financial factors. It has to be mentioned that the level of adoption of these techniques was higher than previous studies, for example Cohen *et al.* (2005) reported a total of 36 companies which implemented ABC out of 88 companies sampled. The current study reports 142 users of ABC and 127 users of activity based management (ABM) out of 198 companies sampled in total. The benefits though gained from practicing ABC, Table A6, were in moderate ranking (ranked 20) and low from ABM (ranked 37), but high for Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets) (ranked 4).

Benchmarking was not important to most of the firms surveyed. Benchmarking within the wider organization (ranked 12) was the only item highly implemented. Benchmarking with outside organizations (ranked 16), Benchmarking of: Strategic priorities (ranked 20), Benchmarking of: Product characteristics (ranked 22), were of medium implementation. Benchmarking of: Management processes (ranked 22), Benchmarking of: Operational processes (ranked 23), were on the low adoption side. While adoption rates were relatively moderate and low the benefits received from practicing the respective techniques enjoyed better appreciation, Table A6. With the exemption of Benchmarking carried out: With outside organizations (ranked 9) - highly benefited, all rest are of moderate benefit received: Benchmarking of: Operational processes (ranked 15), Benchmarking of: Product characteristics (ranked 16), Benchmarking of: Strategic priorities (ranked 16), Benchmarking carried out: Within the wider organization (ranked 17), Benchmarking of: Management processes (ranked 21).

Also the rest of Strategic Management Accounting techniques were distributed to all implementation levels, Table A5. Thus, highly implemented were: Strategic Man. Accounting: Competitor appraisal based on published financial statements (ranked 9). Of medium implementation were: Strategic Man. Accounting: Strategic pricing (ranked 17), Strategic Man. Accounting: Competitor cost assessment (rank 21), Strategic Man. Accounting: Quality costing (ranked 20), Strategic Man. Accounting: Target costing (ranked 21). Of low implementation were: Strategic Man. Accounting: Attribute costing (ranked 23), Strategic Man. Accounting: Strategic costing (ranked 25), Value chain analysis (ranked 25), Strategic Man. Accounting: Life cycle costing (ranked 30), Strategic Man. Accounting: Brand value budgeting and monitoring (ranked 32), Strategic Man. Accounting: Value chain costing (ranked 33). The relative benefits received, Table A6, from implementing the strategic management accounting techniques were mainly to low

category. Thus, medium benefits received the organizations by practicing the following techniques: Strategic Man. Accounting: Competitor appraisal based on published financial statements (ranked 21), Strategic Man. Accounting: Target costing (ranked 23), Strategic Man. Accounting: Competitor cost assessment (ranked 26). Low benefits were reported for the following categories: Strategic Man. Accounting: Strategic pricing (ranked 29), Strategic Man. Accounting: Life cycle costing (ranked 31), Strategic Man. Accounting: Quality costing (ranked 31), Strategic Man. Accounting: Attribute costing (ranked 32), Strategic Man. Accounting: Strategic costing (ranked 38), Strategic Man. Accounting: Brand value budgeting and monitoring (ranked 40), Strategic Man. Accounting: Value chain costing (ranked 41).

Some recently developed techniques were found to be low adopted and give low benefits as well. These are, Decision support systems: Product life cycle (ranked 25), Value chain analysis (ranked 25). The benefits received were low ranked 25 and 27 respectively.

Future emphasis on management accounting practices

To emphasize on future directions the survey investigated the intention of firms to exercise each management accounting practice over the next 3 years. The intention of firms is presented on the right hand side of Table A6.

Organizations maintain their interest in financial practices to continue to be important in the future. For example the importance for Detail budgeting systems for: Controlling costs which received the highest rank for benefits received, was confirmed for high future emphasis (ranked 2). Similarly, Decision support systems: Product profitability analysis continues to be important for future use (ranked 2 for past benefits and ranked 9 for future use). Performance evaluation is based on: Budget variance analysis (ranked 3 in past benefits) was also regarded as having continuing relevance in the future (ranked 3). Performance evaluation is based on: Return (profit) on investment (ranked 5) will attend the same emphasis in the future (ranked 5), Detail budgeting systems for: Planning – Operational Budgeting (ranked 10) will continue of high emphasis (ranked 9), Performance evaluation is based on: Controllable profit (ranked 13) will continue with medium emphasis (ranked 21), Performance evaluation is based on: Divisional profit (ranked 14) will be highly emphasized (rank 11). Performance evaluation is based on: Residual income (e.g. interested adjusted profit) low benefits gained from implementation and the future emphasis is ranked low (ranked 32).

As far as the non financial practices practitioners reported that they will continue to

focus on them although in a smaller degree than the financial ones. Thus, Performance evaluation practices such as: Customer satisfaction surveys and Ongoing supplier evaluations they have scored high in the past benefits (ranked 6 and 11) their future preference is of high priority as well (ranked 4 and 13 respectively). The practices of Performance evaluation is based on: Qualitative measures and Detail budgeting systems for: Compensating managers even they had scored medium in the past benefits (ranked 19 and 24) their future preference is of high priority (ranked 6 and 2). The practices of Performance evaluation is based on: Team performance, Employee attitudes, Non -- financial measures even they had scored low in the past benefits (ranked 32, 34, 39) their future preference is of medium priority (ranked 17, 14, 16). The practice of Balance scorecard (mix of financial and non-financial measures) had scored low both in the past benefits and for the future use (ranked 35 and 34 respectively).

Practitioners noted that traditional short-term planning techniques will continue to enjoy future attention. The future emphasis for Detail budgeting systems for: Planning - Cash flows (ranked 1), Detail budgeting systems for: Planning - Financial position (ranked 10), had high and medium rankings for past benefits (ranked 8 and 22). Detail budgeting systems for: Planning - Day-to-day operations (ranked 14 - medium) had highly benefited (ranked 7). Decision support systems: Cost volume profit analysis (e.g. breakeven analysis) and Operations research techniques have received medium emphasis (ranked 21 both) and in the past benefits had received high and medium benefits (ranked 12 and 28). Some of the Cost Analysis methods received a low future emphasis while in past benefits had high and medium rankings. Thus, Cost analysis: Project Costing, Cost analysis: Job Order Costing, Cost analysis: Absorption or Full costing, received a low future emphasis (ranked 24,29,30) had high rankings in past benefits (ranked 9,9,6). Same situation for the Cost analysis: Standard Costing, low future emphasis (ranked 25) and had received medium past benefits (ranked 23). The last two of short-term planning which had low future emphasis and low past benefits were the Cost analysis: Marginal / Direct Costing (ranked 29) and Cost analysis: Process Costing (ranked 35) had received low past benefits (ranked 33 and 30).

For the long term planning practices practitioners increased their future emphasis, thus: Formal strategic planning (ranked 1), Strategic Plans Developed: Together with budgets (ranked 7), Capital Budgeting: Payback period (ranked 7), Long Range Forecasting (ranked 8), Capital Budgeting: Net present value (NPV) (ranked 9), all previous practices have improved their future emphasis (past benefits respective rankings: 6,7,21,15,11). Also Capital Budgeting: Return on Investment (ROI) (ranked 12) improved

to high emphasis from medium benefits gained (ranked 16), Capital Budgeting: Internal rate of return (IRR) remained unchanged (ranked 18 in both), Strategic Plans Developed: Separate from budgets improved from low past benefits received (ranked 42) to medium future emphasis (ranked 20), and Capital Budgeting: NPV sensitivity analysis remained in the same low category (ranked 29 in the past benefits, ranked 26 in the future emphasis).

For the strategic practices the first four in ranking were: Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets) (ranked 3) of high future emphasis and of significant benefits received (ranked 4), Strategic Man. Accounting: Competitor appraisal based on published financial statements (ranked 9), of high future emphasis and of medium benefits received (ranked 21), and Benchmarking carried out: Within the wider organization was of high importance for future emphasis (ranked 12) improved from past benefits (ranked 17), Benchmarking carried out: With outside organizations was of high importance in benefits received (ranked 9) but dropped to medium importance of future emphasis (ranked 15). The last four in strategic practices were of low importance in past benefits received and were Strategic Man. Accounting: Strategic costing (ranked 38), Strategic Man. Accounting: Life cycle costing (ranked 31), Strategic Man. Accounting: Brand value budgeting and monitoring (ranked 40), Strategic Man. Accounting: Value chain costing (ranked 41) all but life cycle costing were improved but still in the low future emphasis (ranked respectively 29,31,31,33).

Table A7, lists the respective MAP that had at least six point difference in rankings between past benefits received and future emphasis³. This is performed in order to dictate those practices where the degree of emphasis is anticipated to change. Further discussion for future trends in Chapter 7.

5.2 CONTINGENT INTERNAL AND EXTERNAL FACTORS

In this part the analysis refers to internal and external contingent, factors which affect (questions B,C,D,E,G1) or affected (question G2) by the use of MAP. These are the following questions and kinds of practices from the survey questionnaire: Question B - Other Practices - 8 items, question C - Other Influences - 10 items, Question D - Management Techniques - 14 items, Question E - Basic Factors - 5 items, question F Business Philosophy - 10 items, question G1 - Time - 15 items, G2 - Performance Indicators - 14 items.

The following *Other Practices* have positively affected the use of MAP in the organizations sampled. From Table B1, Appendix 3, can be concluded that Business

³ Grading is performed according to Chenhall and Langfield-Smith (1998c)

Process Engineering (Mean 4.04) is the first, second is Flexible Manufacturing Systems (3.97), and third is Total Quality Management (3.97). The last two are: Just in Time (3.67) and Value Chain Analysis (3.58).

The following *Other Influences* have positively affected the use of MAP in the organisations. From Table C1, Appendix 3, can be concluded that Technology (Mean 4.43) is the first, second is Education of Students and Employees (4.40), and third is Individual Consultants (4.30). The last two are: Professional Associations (3.47) and Inflation (3.02).

The following *Management Techniques* have positively affected the use of MAP in the organisations. From Table D1, Appendix 3, can be concluded that Integrating information systems across functions (Mean 4.40) is the first, second is Certification to Quality Standards (4.30), and third is Implementing new manufacturing / service methods (4.28). The last two are: Integrating information systems with supplier and/or distributors (3.58) and Downsizing the organization (3.09).

The following *Basic Factors* have positively affected the use of MAP in the organisations. From Table E1, Appendix 3, can be concluded that Organizational Structure (Mean 4.25) is the first, second is Strategy (4.30), and third is Information Technology (4.46). The last two are: External Environment (3.99) and National Culture (3.65).

The following statements have been part of *Business Philosophy* of the organisations responded. From Table F1, Appendix 3, can be concluded that respondents mostly support the following: a) When companies go through economic troublesome they try to improve financial performance (Mean 4.22), b) Executives tend to use more financial information than non – financial when they operate in environmental and economic uncertainty (4.03), c) When companies enjoy better financial conditions managers consider more about long term success based on non – financial performance indicators (3.83).

From the above three statements can be concluded that firms focus more to financial figures, performance and conditions. Also, so far, some preference is indicated to traditional MA techniques instead of more recently developed ones items 8 (3.74) and 7 (3.63) in the Table F1.

All Tables from G.1.1 up to G.2.5, Appendix 3, show that the majority of companies *have been using* most of the tools for more than five years, PB Tools 73%, DS Tools 68.2%, CA Tools 78.3%, PE Tools 63%, and SMA Tools 66.9%. Also there is almost the same evidence for *decision making* PB Tools 75.4, DS Tools 63.7%, CA Tools 80.5%, PE Tools 66.8%, and SMA Tools 65.3%. For *quality programme improvement*

the numbers are lower but interesting, Tables G.3.1 – G.3.5, PB Tools 53.2%, DS Tools 60.0%, CA Tools 59.5%, PE Tools 44.8%, and SMA Tools 43.9%.

5.3 ORGANIZATIONAL PERFORMANCE IMPROVEMENT

According to practitioners involved in the study the following performance indicators have been improved in the last three years in relation with the respective industry averages, declaring a further organizational performance improvement. This leads to the conclusion that when companies implement a bundle of suggested MAP there is a great probability to enjoy an improvement in some performance indicators. These improved performance indicators are: Customer Satisfaction, Sales Volume, Return on Investment, etc, see Table G.1. As presented, there is improvement, first, in financial performance indicators (Sales volume, ROI, Growth in Sales Volume, etc) and second, as well as in non-financial performance indicators (Customer satisfaction, Quality product, Employee attitudes and morale, etc). Also Table G3 presents the more benefits - improvement received per sector. First is Manufacturing (8) then is Commerce (6), and third is Services.

More specifically as far as improvement in performance by practicing the various MAP the following *Performance Indicators* have been improved in the last three years in relation with the industry average. These are Customer Satisfaction (Mean 4.13), Sales Volume (4.07), Return on Investment (4.01). Unit Cost and Speed of New Product Introduction taking the last two places in ranking, 3.69% and 3.68% respectively, see Table G1 in the Appendix 3.

Table 5.1, the upper part, presents the mostly benefited industry sectors by practicing the various MAP, these are: Commerce (29), Services (17) and last Manufacturing (11). The bottom part reports the factors that have positively affected the use of MAP and the most benefited sectors which are again Commerce (22), Services (16), and Manufacturing (14).

In all abovementioned cases the Coefficients of Variations are significant (>10%), Appendix 3, which means that there is a big variation, among the companies, in the appreciation of positive effects derived from the use of practices. From ANOVA Tables, Appendix 3, can be concluded that for the various practices there is a significant variation among companies - sectors in the degree of appreciation of positive effects gained. Statistically significant difference between sectors is when Sig. is less than 0.05, see Table G2, Appendix 3.

Table 5.1: Mostly Benefited companies per sector by practicing the various MAP

Practice (MEANS)	Manufacturing	Commerce	Services	Total
MAP	11	29	17	57
Most positively affected industrial sectors by the use of contingent factors (sums of higher means)				
Contingent Factors	Manufacturing	Commerce	Services	Total
Other Practices	1	7	0	8
Other Influences	2	4	5	11
Management Techniques	2	4	8	14
Basic Factors	1	1	3	5
Performance Measurement	8	6	0	14
Total	14	22	16	52

5.4 MODEL AND HYPOTHESES TESTING

5.4.1 Preliminary test of efficacy

Prior to official hypothesis testing a rough approximation of the main models was tested. The models produced information regarding the overall efficacy of variables. Two constructs composed of two performance variables and were regressed against constructs of the thirteen independent variables. Survey items are weighted equally within constructs and constructs are weighted equally within composite constructs. The regression models are:

$$\Delta FP = \alpha_{FP} + b_{1FP} * X_1 + b_{2FP} * X_2 + \dots b_{13FP} * X_{13}.$$

$$\Delta NFP = \alpha_{NFP} + b_{1NFP} * X_1 + b_{2NFP} * X_2 + \dots b_{13NFP} * X_{13}.$$

Where:

ΔFP = the average of five-point measures of industry improvement of financial performance items over three years (composite construct of market and corporate performance).

ΔNFP = the average of five-point measures of industry improvement of non financial performance items over three years (operational performance).

b_{1FP} , b_{2NFP} = the respective beta coefficients of independent variables.

$X_1 \dots X_{13}$: The respective thirteen independent variables.

5.4.2 Hypothesis Testing

For hypotheses testing the technique of multiple regression analysis was

implemented. Multiple regression analysis is a statistical technique that can be used to analyze the relationship between a single dependent variable and several independent variables (Hair *et al.*, 1998). The purpose of the first two hypotheses is to test whether the use of MAP (independent variables) are directly associated with improvement of financial and non-financial performance (dependent variables). Positive significance of the independent variables would indicate a direct effect on change in performance thus confirming H1 and H2. Then the model explores which contingent factors (independent variables) are the components that contribute to this improvement. Again positive significance of the independent variables would indicate a direct effect thus confirming hypotheses H3 and H4.

The independent variables: capital budgeting techniques, detail budgeting systems, decision support systems, Cost analysis methods, performance evaluation methods, SMA techniques, Other practices (B), Other influences (C) and Management techniques (D) are represented by the mean score of the items from which they constitute, according to the test of reliability and validity that have realized. The rest of variables, formal strategic planning, long range forecasting, value chain analysis, operations research techniques, constitute from one item. Variable items are presented analytically in Table 5.11.

The dependent variables: as a dependent variable were used first the composite variable of financial performance indicators (questionnaire items G.2.1 - market performance and items G.2.2 - corporate performance), and then the non financial performance indicators (items G.2.3 - operational performance). Again, the performance variables are represented by the mean score of the items from which they constitute, according to the test of reliability and validity that have realized. Variable items are presented analytically in Table 5.12.

As independent variables will be used, in all three cases the following variables:

1. Formal strategic planning
2. Capital budgeting techniques
3. Long range forecasting
4. Detail budgeting systems
5. Decision support systems
6. Value chain analysis
7. Operations research techniques
8. Cost analysis methods
9. Performance evaluation methods
10. SMA techniques
11. Other practices (B)
12. Other influences (C)

13. Management techniques (D)

Table 5.2: Test for univariate normality

Variables	Skewness	Kurtosis
1. Formal strategic planning	-.673	-.657
2. Capital budgeting techniques	-1.075	2.057
3. Long range forecasting	-1.263	2.444
4. Detail budgeting systems	-1.435	3.560
5. Decision support systems	-1.373	2.243
6. Value chain analysis	.000	-1.096
7. Operations research techniques	-1.027	1.643
8. Cost analysis methods	-1.045	4.789
9. Performance evaluation methods	-.563	.211
10. SMA techniques	-1.059	2.004
11. Other practices (B)	.077	-.938
12. Other influences (C)	-.395	-.203
13. Management techniques (D)	-1.126	.823
14. Market Performance (Financial)	-.740	.719
15. Corporate Performance (Financial)	-1.116	1.487
16. Operational Performance (Non Financial)	-.673	.554

Before running the multiple regression analysis, the testing for the univariate normality of all variables was performed with computation of skewness and kurtosis. According to Kline (1998) skewness greater than 3.0 and kurtosis greater than 10.0 may suggest problem with the data. Checking the results of Table 5.2 it is concluded that there are not any normality problems.

In the first set of regression analysis as a dependent variable was assumed the *financial performance* (mean value of the two constructs: market performance and corporate performance) and as independent all the aforementioned ones. In the second set of regression analysis as a dependent variable was assumed the *non-financial performance* (mean value of the operational performance construct) and as independent all the aforementioned ones. Further detail regression analysis is presented in the following section.

Regression Analysis

Attempting to verify the hypotheses two sets of multiple regression analyses were performed. The first set examines the relationship between MAP, contingent factors and financial performance, thus verifies H1 and H3. The second set examines the relationship between MAP, contingent factors and non financial performance, thus verifies H2 and H4.

The sample size is satisfactory in relation to volume of independent variables as it exceeds the marginal limit of 195 (13×15) units which are suggested for 13 independent variables (Hair *et al.*, 1998).

Regression Analysis - Financial Performance Models (FP)

The first set of analysis comprised from four models. First, only the ten MAPs are regressed against financial performance. Then in the next three following models every time is added one additional contingent factor to examine the impact of these factors to financial performance.

Model FP1

Dependent Variable: Financial Performance,

Independent Variables: Formal strategic planning, Capital budgeting techniques, Long range forecasting, Detail budgeting systems, Decision support systems, Value chain analysis, Operations research techniques, Cost analysis methods, Performance evaluation methods, SMA techniques.

Table 5.3: Financial Performance Model 1

Model FP1 - Coefficients			
Independent Variables	Beta	t	Sig.
(Constant)		5.213	0.000
Formal strategic planning	0.020	0.215	0.830
Capital budgeting techniques	0.133	1.123	0.264
Long range forecasting	-0.024	-0.266	0.791
Detail budgeting systems	0.420	3.234	0.002***
Decision support systems	0.035	0.300	0.765
Value chain analysis	0.313	3.180	0.002***
Operations research techniques	0.132	1.022	0.310
Cost analysis methods	0.365	3.901	0.000***
Performance evaluation methods	0.070	0.657	0.513
SMA techniques	0.349	2.930	0.004***

F=4.681 Sig.=0.000
R Square = 0.347 Adjusted R Square = 0.273 = 27.30%

*** significant at 0.01 level

** significant at 0.05 level

* significant at 0.10 level

The model is statistically significant ($F=4.681$ and $Sig=0.000$) and the ten (10) independent variables explain the dependent variable by 27.3 percent (adjusted $R^2 = 0.273$).

More specifically, for MAP: Detail budgeting systems, Value chain analysis, Cost analysis methods, SMA techniques, beta coefficients are positive and statistically significant at 0.01 level, thus H1 is accepted (H1: There is a positive association between the use of MAP and relative improvement in financial performance). The rest independent variables are statistically insignificant; therefore do not support the suggested model.

Model FP2

Dependent Variable: Financial Performance,

Independent Variables: Formal strategic planning, Capital budgeting techniques, Long range forecasting, Detail budgeting systems, Decision support systems, Value chain analysis, Operations research techniques, Cost analysis methods, Performance evaluation methods, SMA techniques, Other practices (B).

Table 5.4: Financial Performance Model 2

Model FP2 - Coefficients			
Independent Variables	Beta	t	Sig.
(Constant)		3.955	0.000
Formal strategic planning	0.150	0.159	0.874
Capital budgeting techniques	0.138	1.231	0.222
Long range forecasting	-0.049	-0.544	0.588
Detail budgeting systems	0.187	1.641	0.105*
Decision support systems	-0.032	-0.253	0.801
Value chain analysis	0.148	1.353	0.180
Operations research techniques	0.004	0.030	0.976
Cost analysis methods	0.490	4.496	0.000***
Performance evaluation methods	0.095	0.935	0.352
SMA techniques	0.327	1.982	0.051**
Other practices (B)	0.215	1.808	0.075*

F=5.389 Sig.=0.000
R Square = 0.438 Adjusted R Square = 0.34 = 34.00%

*** significant at 0.01 level

** significant at 0.05 level

* significant at 0.10 level

The model is statistically significant (F=5.389 and Sig=0.000).

By adding one more independent variable in the previous model, the R² increases by 26.22 percent (from R² 0.347 to 0.438).

This additional contingent variable has a positive beta coefficient (0.215) and it is statistically significant at 0.10 level. Thus H3 is accepted (H3: The association between the use of MAP and relative improvement in financial performance is impacted by specific contingent factors, i.e., the 'Other Practices').

Model FP3

Dependent Variable: Financial Performance,

Independent Variables: Formal strategic planning, Capital budgeting techniques, Long range forecasting, Detail budgeting systems, Decision support systems, Value chain analysis, Operations research techniques, Cost analysis methods, Performance evaluation methods, SMA techniques, Other practices (B), Other influences (C).

Table 5.5: Financial Performance Model 3

Model FP3 - Coefficients			
Independent Variables	Beta	t	Sig.
(Constant)		3.982	0.000
Formal strategic planning	0.021	0.216	0.829
Capital budgeting techniques	0.128	1.117	0.268
Long range forecasting	0.046	0.500	0.618
Detail budgeting systems	0.184	1.601	0.114
Decision support systems	-0.032	-0.249	0.804
Value chain analysis	0.154	1.381	0.172
Operations research techniques	0.012	0.101	0.920
Cost analysis methods	0.484	4.409	0.000***
Performance evaluation methods	0.113	1.070	0.288
SMA techniques	0.329	1.966	0.053*
Other practices (B)	0.199	1.654	0.102*
Other influences (C)	-0.055	-0.542	0.589

F=4.86 Sig.=0.000
R Square = 0.441 Adjusted R Square = 0.35 = 35.00%

*** significant at 0.01 level

** significant at 0.05 level

* significant at 0.10 level

The model is statistically significant (F=4.86 and Sig=0.000).

By adding one more independent variable in the previous model, the R² increases by 0,30 percent (from R² 0.438 to 0.441).

However, this additional contingent variable has a negative beta coefficient (-0.055) and it is statistically insignificant at 0.10 level. Thus H3₀ is accepted for this specific contingent variable 'Other influences' (The association between the use of MAP and relative improvement in financial performance *is not* impacted by specific contingent factors).

Model FP4

Dependent Variable: Financial Performance,

Independent Variables: Formal strategic planning, Capital budgeting techniques, Long range forecasting, Detail budgeting systems, Decision support systems, Value chain analysis, Operations research techniques, Cost analysis methods, Performance evaluation methods, SMA techniques, Other practices (B), Other influences (C), Management techniques (D).

Table 5.6: Financial Performance Model 4

Model FP4 - Coefficients			
Independent Variables	Beta	t	Sig.
(Constant)		4.002	0.000
Formal strategic planning	-0.013	-0.125	0.901
Capital budgeting techniques	0.085	0.678	0.500
Long range forecasting	-0.181	-1.520	0.133
Detail budgeting systems	0.156	1.291	0.201
Decision support systems	-0.028	-0.204	0.839
Value chain analysis	0.211	1.650	0.104*
Operations research techniques	0.041	0.315	0.754
Cost analysis methods	0.561	4.585	0.000***
Performance evaluation methods	0.074	0.660	0.512
SMA techniques	0.349	1.974	0.053*
Other practices (B)	0.150	1.097	0.277
Other influences (C)	0.110	0.837	0.406
Management techniques (D)	0.234	1.807	0.075*

F=4.474 Sig.=0.000
R Square = 0.480 Adjusted R Square = 0.373 = 37.30%

*** significant at 0.01 level

** significant at 0.01 level

* significant at 0.10 level

The model is statistically significant (F=4.474 and Sig=0.000).

By adding one more independent variable in the previous model, the R² increases by 6 percent (from R² 0.441 to 0.480).

This additional contingent variable has a positive beta coefficient (0.234) and it is statistically significant at 0.10 level. Consequently, H3 is accepted (The association between the use of MAP and relative improvement in financial performance is impacted by specific contingent factors, i.e., the 'Management techniques').

Regression Analysis - Non Financial Performance Models (NFP)

The second set of analysis comprised from four models. First, only the ten MAPs are regressed against non financial performance. Then in the next three following models every time is added one additional contingent factor to examine the impact of these factors to non financial performance.

Model NFP1

Dependent Variable: Non Financial Performance.

Independent Variables: Formal strategic planning, Capital budgeting techniques, Long range forecasting, Detail budgeting systems, Decision support systems, Value chain analysis, Operations research techniques, Cost analysis methods, Performance evaluation methods, SMA techniques.

Table 5.7: Non Financial Performance Model 1

Model NFP1 - Coefficients			
<i>Independent Variables</i>	Beta	t	Sig.
(Constant)		4.640	0.000
Formal strategic planning	0.133	2.909	0.003***
Capital budgeting techniques	-0.038	0.246	0.360
Long range forecasting	0.179	1.719	0.067*
Detail budgeting systems	-0.565	-5.559	0.001***
Decision support systems	-0.008	-0.197	0.422
Value chain analysis	0.133	2.909	0.003***
Operations research techniques	0.119	1.568	0.060*
Cost analysis methods	-0.150	-4.007	0.001***
Performance evaluation methods	0.262	3.109	0.002***
SMA techniques	0.177	2.397	0.003***
F=3.25 Sig.=0.000			
R Square = 0.27 Adjusted R Square = 0.187 = 18.70%			

*** significant at 0.01 level

** significant at 0.05 level

* significant at 0.10 level

The model is statistically significant (F=3.25 and Sig=0.000) and the ten (10) independent variables explain the dependent variable by 18.70 percent (adjusted R² = 0.187).

More specifically, for MAP: Formal Strategic Planning, Long Range Forecasting, Value Chain Analysis, Operations research techniques, Performance evaluation methods, SMA techniques, beta coefficients are positive and statistically significant at 0.01 and 0.10 level, thus H2 is accepted (There is a positive association between the use of MAP and relative improvement in financial performance).

However, for MAP: Detail budgeting systems, and Cost analysis methods, beta coefficients are negative and statistically significant at 0.01 level, thus H_0 is accepted (There is no positive association between the use of MAP and relative improvement in non financial performance).

The rest independent variables are statistically insignificant – do not support the suggested model.

Model NFP2

Dependent Variable: Non Financial Performance,

Independent Variables: Formal strategic planning, Capital budgeting techniques, Long range forecasting, Detail budgeting systems, Decision support systems, Value chain analysis, Operations research techniques, Cost analysis methods, Performance evaluation methods, SMA techniques, Other practices (B).

Table 5.8: Non Financial Performance Model 2

Model NFP2 - Coefficients			
<i>Independent Variables</i>	Beta	t	Sig.
(Constant)		3.227	0.002
Formal strategic planning	0.139	1.773	0.458
Capital budgeting techniques	0.100	1.348	0.856
Long range forecasting	0.167	1.606	0.886
Detail budgeting systems	-0.400	-4.379	0.796
Decision support systems	-0.056	-0.651	0.725
Value chain analysis	0.083	2.004	0.034**
Operations research techniques	0.090	1.357	0.758
Cost analysis methods	-0.189	-3.660	0.004***
Performance evaluation methods	0.216	2.682	0.312
SMA techniques	0.048	1.289	0.859
Other practices (B)	0.057	0.609	0.350
F=2.625 Sig.=0.000			
R Square = 0.275 Adjusted R Square = 0.17 = 17.0%			

*** significant at 0.01 level

** significant at 0.05 level

* significant at 0.10 level

The model is statistically significant (F=2.625 and Sig=0.000).

By adding one more independent variable, i.e., the 'Other practices', in the previous model, the R^2 increases only by 0.50 percent (from R^2 0.270 to 0.275).

However, although this additional contingent variable has a positive beta coefficient (0.057) it is statistically insignificant. Thus, H_0 is accepted (The association between the

use of MAP and relative improvement in non financial performance *is not* impacted by specific contingent factors).

Model NFP3

Dependent Variable: Non Financial Performance,

Independent Variables: Formal strategic planning, Capital budgeting techniques, Long range forecasting, Detail budgeting systems, Decision support systems, Value chain analysis, Operations research techniques, Cost analysis methods, Performance evaluation methods, SMA techniques, Other practices (B), Other influences (C).

Table 5.9: Non Financial Performance Model 3

Model NFP3 - Coefficients			
Independent Variables	Beta	t	Sig.
(Constant)		2.924	0.005
Formal strategic planning	0.126	1.652	0.125
Capital budgeting techniques	0.125	1.535	0.135
Long range forecasting	0.159	1.700	0.450
Detail budgeting systems	-0.407	-4.430	0.001***
Decision support systems	-0.055	-0.648	0.723
Value chain analysis	0.074	0.748	0.800
Operations research techniques	0.069	0.700	0.750
Cost analysis methods	-0.189	-3.650	0.004**
Performance evaluation methods	0.175	2.298	0.048*
SMA techniques	0.022	0.630	0.970
Other practices (B)	0.089	0.839	0.246
Other influences (C)	0.589	7.044	0.001***
F=2.459 Sig.=0.000			
R Square = 0.285 Adjusted R Square = 0.169 = 16.9%			

*** significant at 0.01 level

** significant at 0.05 level

* significant at 0.10 level

The model is statistically significant (F=2.459 and Sig=0.000).

By adding one more independent variable, i.e., the ‘Other influences’, in the previous model, the R² increases by 3 percent (from R² 0.275 to 0.285).

This additional contingent variable has a positive beta coefficient (0.589) and it is statistically significant at 0.01 level. Thus H4 is accepted (The association between the use of MAP and relative improvement in non financial performance *is* impacted by specific contingent factors).

Model NFP4

Dependent Variable: Non Financial Performance,

Independent Variables: Formal strategic planning, Capital budgeting techniques, Long range forecasting, Detail budgeting systems, Decision support systems, Value chain analysis, Operations research techniques, Cost analysis methods, Performance evaluation methods, SMA techniques, Other practices (B), Other influences (C), Management techniques (D).

Table 5.10: Non Financial Performance Model 4

Model NFP4 - Coefficients			
Independent Variables	Beta	t	Sig.
(Constant)		3.989	0.004
Formal strategic planning	0.083	1.246	0.828
Capital budgeting techniques	0.097	1.307	0.888
Long range forecasting	0.046	0.719	0.907
Detail budgeting systems	-0.328	-3.83	0.001***
Decision support systems	-0.043	-0.59	0.677
Value chain analysis	0.171	2.361	0.003***
Operations research techniques	0.127	1.593	0.588
Cost analysis methods	-0.267	-3.98	0.002
Performance evaluation methods	0.140	1.997	0.002***
SMA techniques	0.137	1.734	0.068*
Other practices (B)	0.017	0.239	0.095*
Other influences (C)	0.362	5.244	0.003***
Management techniques (D)	-0.212	-3.001	0.097*

F=5.937 Sig.=0.000
R Square = 0.296 Adjusted R Square = 0.246 = 24.6%

*** significant at 0.01 level

** significant at 0.05 level

* significant at 0.10 level

The model is statistically significant (F=5.937 and Sig=0.000).

By adding one more independent variable, i.e., the 'Management techniques', in the previous model, the R² increases also by 3 percent (from R² 0.285 to 0.296).

However, this additional contingent variable has a negative beta coefficient (-0.212) and it is statistically significant at 0.10 level. Consequently, H₄₀ is accepted (The association between the use of MAP and relative improvement in non financial performance is *not* impacted by specific contingent factors).

5.4.3 Hypotheses testing – summary

Once again the alternative and null hypotheses of this study are:

H1. There is a positive association between the extent of use of MAP and relative improvement in financial performance (compared with other firms in the industry).

With null hypothesis:

H1₀. There is no positive association between the extent of use of MAP and relative improvement in financial performance (compared with other firms in the industry).

and

H2. There is a positive association between the extent of use of MAP and relative improvement in non financial performance (compared with other firms in the industry).

With null hypothesis:

H2₀. There is no positive association between the extent of use of MAP and relative improvement in non financial performance (compared with other firms in the industry).

And

H3. The association between the extent of use of MAP and relative improvement in financial performance is impacted by specific contingent factors and organizational characteristics.

With null hypothesis:

H3₀. The association between the extent of use of MAP and relative improvement in financial performance is not impacted by specific contingent factors and organizational characteristics.

And

H4. The association between the extent of use of MAP and relative improvement in non financial performance is impacted by specific contingent factors and organizational characteristics .

With null hypothesis:

H4₀. The association between the extent of use of MAP and relative improvement in non financial performance is not impacted by specific contingent factors and organizational characteristics .

After performing all the necessary statistical tests some of the alternative and null hypotheses were accepted, some were not supported and some were rejected. More specifically:

Financial performance – Modell (Table 5.3): Statistically significant are the beta

coefficients of the following practices (variables): Detail budgeting systems, Value chain analysis, Cost analysis methods, SMA techniques, *beta* coefficients are positive and statistically significant thus alternative hypothesis H1 is accepted. Therefore these practices are positively related with financial performance improvement. Formal strategic planning, Capital budgeting techniques, Decision support systems, Operations research techniques, Performance evaluation methods, have a positive interaction but their values do not have a direct and significant effect therefore hypothesis H1 is not supported for these variables. Thus, these practices are not related with any financial performance improvement. Finally, Long range forecasting, has a negative beta coefficient but it is not statistically significant, therefore this practice is not related with any financial performance improvement.

Financial performance – Model 2 (Table 5.4): Model 2 includes one more additional variable which is **Other practices (B)**. This additional contingent variable has a positive beta coefficient and it is statistically significant. Thus alternative hypothesis H3 is accepted and these practices have a positive impact on financial performance improvement.

Financial performance – Model 3 (Table 5.5): Model 3 includes one more additional variable which is **Other influences (C)**. This additional contingent variable has a negative beta coefficient and it is statistically insignificant. Thus null hypothesis H3₀ is accepted and these practices have no impact on financial performance improvement.

Financial performance – Model 4 (Table 5.6): Model 4 includes one more additional variable which is **Management techniques (D)**. This additional contingent variable has a positive beta coefficient and it is statistically significant. Thus alternative hypothesis H3 is accepted and these practices have a positive impact on financial performance improvement.

Non Financial performance – Model 1 (Table 5.7): Statistically significant are the *beta* coefficients of the following practices (variables): Formal strategic planning, Long range forecasting, Value chain analysis, Operations research techniques, Performance evaluation methods, SMA techniques, *beta* coefficients are positive and statistically significant thus alternative hypothesis H2 is accepted. Therefore these practices are positively related with non financial performance improvement. Capital budgeting techniques, Decision support systems have a negative interaction but their values do not have a direct and significant effect therefore the hypotheses H2 is not supported for these variables. Therefore these practices are not related with any non financial performance

improvement. Finally, Detail budgeting systems, Cost analysis methods *beta* coefficients are negative and statistically significant thus null hypothesis H_{20} is accepted. Therefore these practices are negatively related with non financial performance improvement.

Non Financial performance – Model 2 (Table 5.8): Model 2 includes one more additional variable which is **Other practices (B)**. This additional contingent variable has a positive beta coefficient and it is statistically insignificant. Thus null hypothesis H_{40} is accepted and these practices have no impact on non financial performance improvement.

Non Financial performance – Model 3 (Table 5.9): Model 3 includes one more additional variable which is **Other influences (C)**. This additional contingent variable has a positive beta coefficient and it is statistically significant. Thus alternative hypothesis H_4 is accepted and these practices have a positive impact on non financial performance improvement.

Non Financial performance – Model 4 (Table 5.10): Model 4 includes one more additional variable which is **Management techniques (D)**. This additional contingent variable has a negative beta coefficient and it is statistically significant. Thus null hypothesis H_{40} is accepted, and these practices have a negative impact on non financial performance improvement.

Figures 5.1 and 5.2 represent graphically the new models after the regression analysis.

Chapter seven offers further interpretations and conclusions on the results and models presented in this chapter.

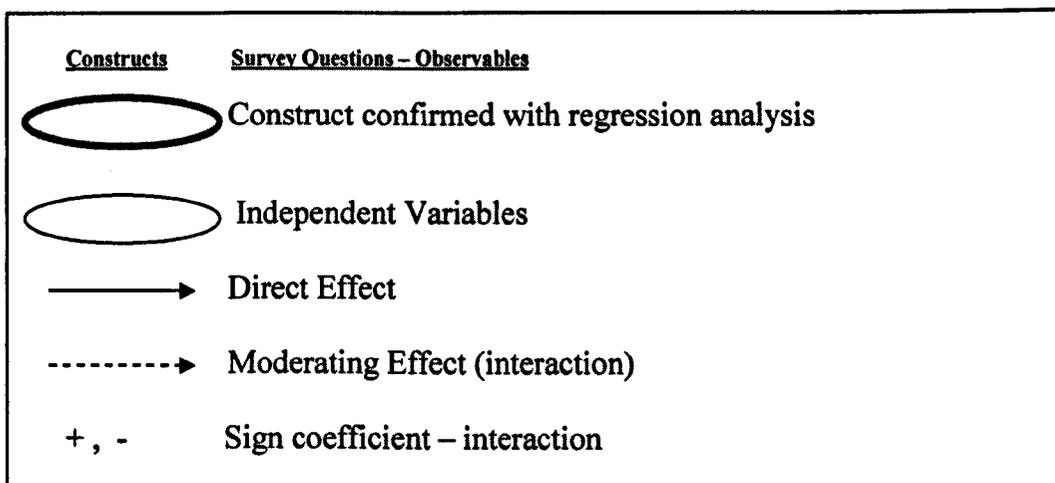
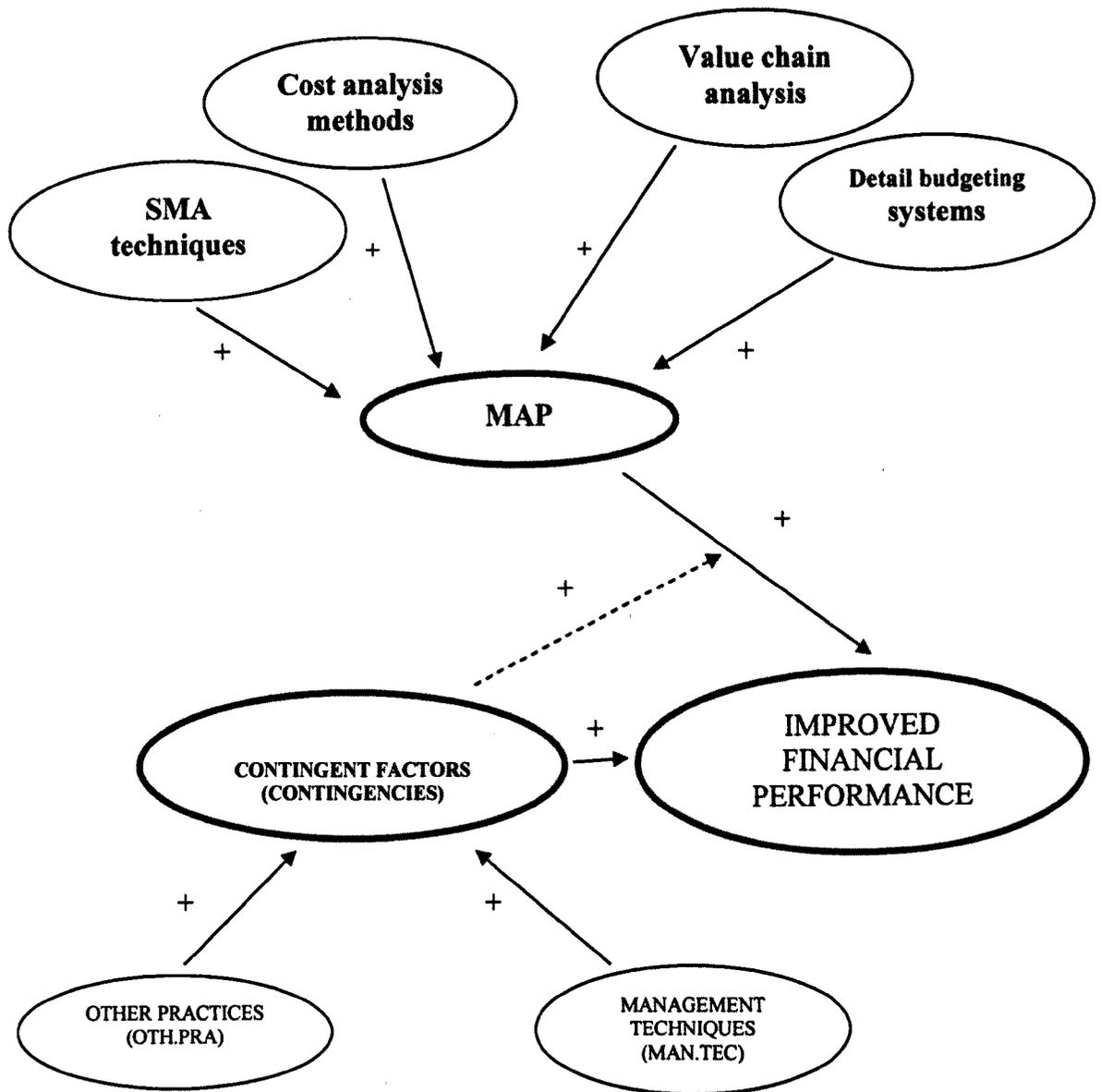


Figure 5.1: The association of MAP, contingent factors and improvement in financial performance

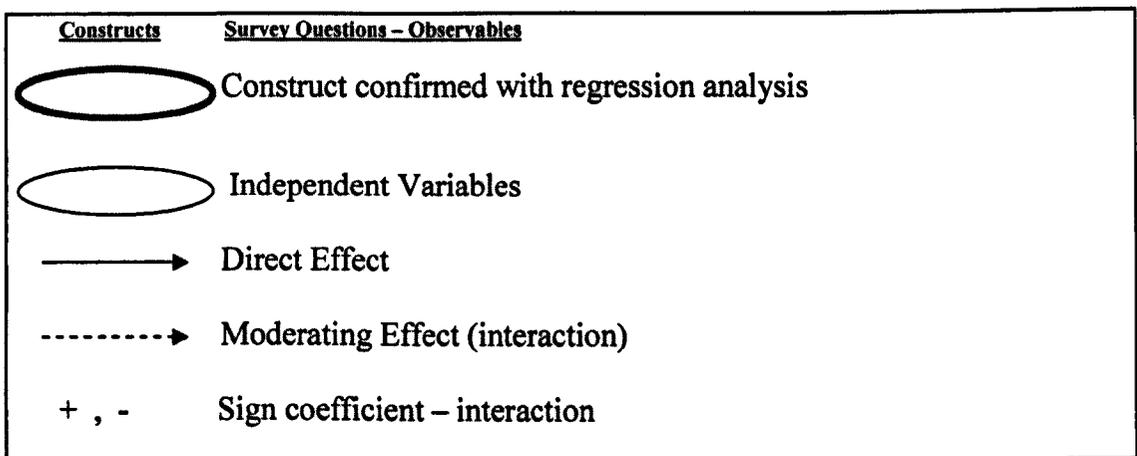
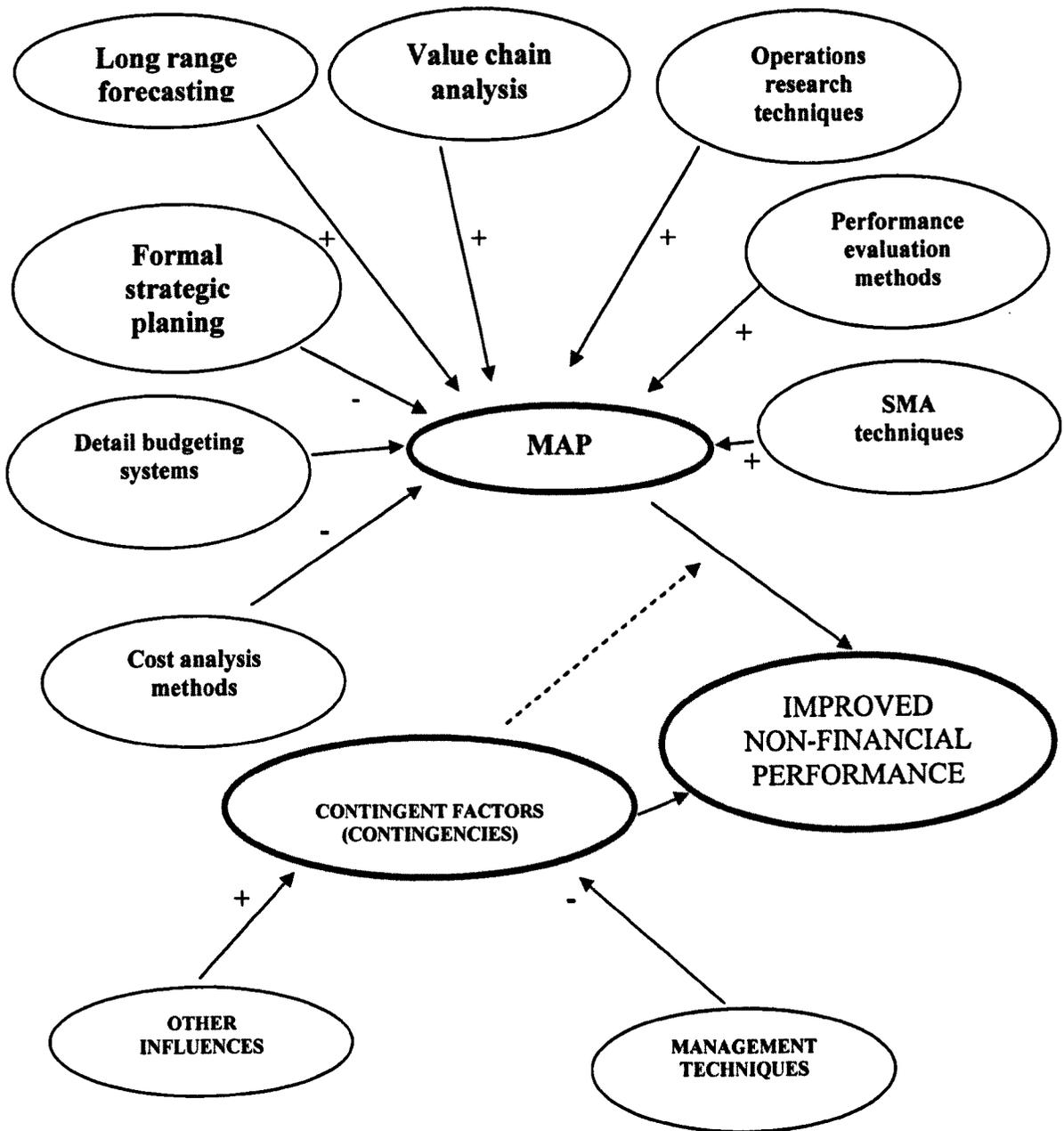


Figure 5.2: The association of MAP, contingent factors and improvement in non-financial performance

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Table 5.11: Final Regression Analysis, Questionnaire Items - Independent Variables

t/c	Cat.	code	Questionnaire Item	no	Independent Variables	Items
T	PLT	1.1	Formal strategic planning	1	Formal Strategic planning	1
T	PLT	1.2.1	Capital Budgeting: Return on Investment (ROI)	2	Capital Budgeting Techniques	3
T	PLT	1.2.3	Capital Budgeting: Net present value (NPV)			
T	PLT	1.2.4	Capital Budgeting: Internal rate of return (IRR)			
T	PLT	1.4.	Long Range Forecasting	3	Long Range Forecasting	1
T	NF	1.5.2	Detail budgeting systems for: Compensating managers	4	Detail Budgeting Systems	3
T	P	1.5.5	Detail budgeting systems for: Planning - Cash flows			
T	P	1.5.6	Detail budgeting systems for: Planning - Financial position			
C	SP	2.1.2	Decision support systems: Product life cycle	5	Decision Support Systems	2
C	SP	2.1.3	Decision support systems: Activity based management			
C	SP	2.4	Value chain analysis	6	Value Chain Analysis	1
C	P	2.5	Operations research techniques	7	Operations Research Techniques	1
T	P	3.1	Cost analysis: Absorption or Full costing	8	cost Analysis	4
T	P	3.3	Cost analysis: Process Costing			
T	P	3.4	Cost analysis: Job Order Costing			
T	P	3.5	Cost analysis: Standard Costing			
T	F	4.1.3	Performance evaluation is based on: Divisional profit	9	Performance Evaluation Methods	9
T	F	4.1.4	Performance evaluation is based on: Residual income (e.g. interested adjusted profit)			
T	F	4.1.5	Performance evaluation is based on: Return (profit) on investment			
C	NF	4.1.6	Performance evaluation is based on: Non – financial measures			
C	NF	4.1.7	Performance evaluation is based on: Team performance			
C	NF	4.1.8	Performance evaluation is based on: Employee attitudes			
C	NF	4.1.9	Performance evaluation is based on: Qualitative measures			
C	NF	4.1.1	0 Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures)			
C	NF	4.1.1	1 Performance evaluation is based on: Customer satisfaction surveys			
C	SP	5.3	Strategic Man. Accounting: Life cycle costing			
C	SP	5.4	Strategic Man. Accounting: Quality costing			
C	SP	5.5	Strategic Man. Accounting: Strategic costing			
C	SP	5.6	Strategic Man. Accounting: Strategic pricing			

t/c	Cat.	code	Questionnaire Item	no	Independent Variables	Items	
C	SP	5.7	Strategic Man. Accounting: Target costing				
C	SP	5.8	Strategic Man. Accounting: Value chain costing				
C	SP	5.9	Strategic Man. Accounting: Brand value budgeting and monitoring				
C	SP	5.10	Strategic Man. Accounting: Competitor appraisal based on published financial statements				
		1	Just-in-Time (JIT)	11	Other Practices (B)	4	
		6	Total Quality Management (TQM)				
		7	Materials requirements planning (MRP)				
		8	Manufacturing resource planning				
		1	Academics	12	Other Influences - C	4	
		4	Professional associations : which promote specific management accounting practices				
		7	Protection and Competition				
		9	Bonus schemes				
		5	Integrating information systems with supplier and/or distributors	13	Management Techniques (D)	3	
		7	Downsizing the organization				
		8	Reorganizing existing manufacturing/service processes				
		Independent Variables – Total Items					44

t/c=traditional, contemporary, PLT=Planning Long Term, NF=Non-Financial, P=Planning, SP=Strategic Planning, F=Financial, NF=Non-Financial.

Table 5.12: Questionnaire Items - Dependent Variables - Performance Measurement

FP/NFP	Cat	Q It.	Questionnaire Item	no	Dependent Variables	Items	
FP	M	1	Sales Volume	14	Market Performance (G2.1)	4	
FP	M	2	Growth in Sales Volume				
FP	M	3	Market Share				
FP	M	4	Growth in Market Share				
FP	C	5	Return on investment (ROI)	15	Corporate Performance (G2.2)	4	
FP	C	6	Net profit				
FP	C	7	Profit margin				
FP	C	8	Asset turnover				
NFP	O	9	Unit cost	16	Operational Performance (G2.3)	6	
NFP	O	10	Quality – Product				
NFP	O	11	Inventory turnover				
NFP	O	12	Customer satisfaction				
NFP	O	13	Speed of new product introduction				
NFP	O	14	Employee Attitudes and Morale				
		Dependent Variables - Total Items					14

F=Financial, NF=Non-Financial, m=Market Performance, c=Corporate Performance, o=Operational Performance.

CHAPTER 6 - INTERVIEWS

This chapter provides all necessary information about the second method of this survey research – the interviews. The main idea for contacting the interviews was to ascertain from practitioners' real life, what really happens, between the lines of the questionnaire, in the organizations involved. To examine using practitioners' own experience what are the main reasons that Greek firms use mainly MAP; What is the purpose? For control? For performance evaluation? For decision making? The kind of interviews used in this research was telephone interviews.

Interviews are a far more personal form of research than questionnaires. In the personal interview, the interviewer works directly with the respondent. Unlike with mail surveys, the interviewer has the opportunity to probe or ask follow-up questions; and interviews are generally easier for the respondent, especially if what are sought are opinions or impressions.

Interviews can be very time consuming and they are resource intensive. The interviewer is considered a part of the measurement instrument and interviewers have to be well trained in how to respond to any contingency. The interviews conducted in this study were telephone interviews. Telephone interviews enable a researcher to gather information rapidly. Most of the major public opinion polls that are reported were based on telephone interviews.

Like personal interviews, they allow for some personal contact between the interviewer and the respondent. And, they allow the interviewer to ask follow-up questions. But they also have some major disadvantages. Generally in telephone surveys, many people don't have publicly-listed telephone numbers. Some don't have telephones. People often don't like the intrusion of a call to their homes. And, telephone interviews have to be relatively short or people will feel imposed upon (Trochim, 2000).

In this study these disadvantages were eliminated because managers were reached at their working environments and telephone interviews were scheduled for specific dates and times beforehand. Also since the researcher is an executive with previous experience in financial and management accounting positions, managers were very comfortable in discussing with one of their 'kind' all relative issues and time did not constitute a problem.

Therefore, the major task of the interview was to extract and explore as much as possible from the practical knowledge of individuals and beyond the boundaries of the questionnaire. By conducting these interviews it was aimed at finding out from the practitioners' own experience the following:

- the causes which lead organisations to maintain or change their Management

Control Systems (MCS), and therefore MAP, in terms of real practice situations and daily practice,

- why and for what purposes Greek organizations use MAP,
- how MAP information is derived, exploited and implemented in these organizations?
- advantages and disadvantages from the respective implementations.

6.1 INTERVIEW METHODOLOGY

This part of thesis, the interviews, falls under the category of interpretive research. The fundamental point for the work for interpretive research is the belief that social systems because of their inherent complexity and recursiveness cannot be treated in the same way as natural phenomena. Social systems are socially constructed and, as such, can be changed by the activities of individuals located within a specific social context. The recognition of the importance of human actions is an essential feature of such an approach (Ryan *et al.*, 2003).

In interpretive case study research researchers aim at 'theoretical generalizations', rather than 'statistical generalizations'. The former attempt to generalize theories so that they explain the observations that have been made, the latter, however, are concerned with statements about statistical occurrences in a particular population. Although such statements may enable researchers to make predictions about occurrences, they do not necessarily provide explanations of individual observations. There are two forms of theoretical generalization. In the first, case studies in new or different contexts are used to generalize (that is, extend) the theory to a wider set of contexts. In the second, theory is used to extend the applicability of the case study findings to other contexts (Yin, 1994).

This part of work will focus on theory generalization.

The selection of organizations comprised from companies randomly selected but with good performance indicators which had responded in the questionnaire survey and are divided in four categories. Ten large organizations from each sector were randomly selected, within the respondents' sample - from each category: manufacturing, commerce and services which implement MAP and affected by the rest of Contingent Factors and report good performance results.

The fourth category comprised from ten randomly selected companies, again within the respondents' sample which do not practise the majority of practices, are not affected much by the majority of Contingent Factors, and reported good performance results. At this point of research decisions had to be taken about what direction to follow and this has

meant that issues of interest have been raised but not followed up. Therefore based on questionnaire findings and various discussions with academics and management consultants it was decided to include good performers who do not use the majority of practices. The resulting analysis needed to keep this selection in account as an attempt to avoid the setting of any boundaries for the interpretation of any final model. Also by adding the fourth category (good performers – less implementation) it was assured that all successful participants were included in the sample. Poor performers were not included in our sample since this work focuses on MAP, contingent factors and improved results.

The number of cases studied in each category was ten and total number of companies interviewed was forty. Initially the intention was to interview more companies per each category selected. However, during the interview process it was clearly noticed that after each category reached about the sixth or seventh company in sequence answers included many similarities in the main issues. Therefore it was decided the representative number for each category to be ten firms.

A piloting phase has preceded the official interview phase aimed to verify the structure and content of the questions (Gill and Johnson, 2002). For this reason ten companies were selected randomly from those participated in the questionnaire survey, plus two major management consulting firms. Besides the questions about MAP, during the piloting phase, practitioners were requested to comment about the major contingent variables which affect their firm's performance.

In order to frame the discussion and lead it towards the major contingent variables the following contextual variables were proposed: External environment, technology (traditional and contemporary), strategy, organizational structure, size and national culture (Chenhall, 2003, p.128). Also during the piloting phase, and through extensive conversations with the practitioners and management consultants, it was attempted to discover the main interest areas and MAP working issues where Greek managers mainly deal in daily practice (Gill and Johnson, 2002). Finally these main interest areas were: the administration of the company, costing methods, planning methods, performance evaluation. Therefore a few additional questions had to be added in the survey questionnaire, which mainly derived from the practitioners and the consulting firms. More specifically they were asked to focus in main areas such as: reasons for changing systems, difficulties of new system – practice implementation and the contingent variables affecting these procedures. Using Otley's (1999) basic questions as a guide (interview questionnaire in Appendix 4), adapted, enriched and modified for the needs of this study, some of the additional questions requested to answer were: How these particular organisations use

management accounting tools? To make decisions? To control? To judge performance? Why are practitioners doing what they are doing? What has been the impact? What are the influences from the other Contingent Factors? After grouping all ideas and concerns in a set of questions proceeded in the main interview phase.

The interview procedure was conducted in two phases (Trochim, 2000).

First, there was a short telephone contact with the financial managers or controllers attempting to explain the whole purpose of the interview, duration, various details, etc. and examine their availability and willingness to participate. After having their confirmation, a final date and time were agreed for the official telephone interview. It has to be noted here that some executives were unwilling to participate, when there was such a situation the attempt moved for the next firm in the list until the final number to be forty. Second, was the official interview with the practitioners. It was assured again, before the beginning of the interview that practitioners were fully aware of all management procedures, MA practices or systems implemented in their organizations. Executives were asked to answer the questions and also they were encouraged to comment extensively on their firms' operational activities⁴. Extensive notes were taken by the interviewer, who compared their notes for content, tone and accuracy following the interviews. In addition, tape recordings were made to selected managers; these tapes were later transcribed and compared to the interviewer's notes. Although the transcripts added additional richness to the notes that had already been compiled, no major discrepancies were found between the interviewer's notes and the transcripts, increasing the interviewer's confidence in the notes. This method has the advantage that the actual decision-making procedure is kept in documents. The disadvantage, in comparison to the traditional questionnaire survey, is that no statistical tests can be performed (Trochim, 2000).

Forty companies were interviewed, the average interview duration was about one and a half hours, the average number of companies interviewed per day was two, and the total days spent in interviews were about twenty. An interview guideline with open-end questions and check points was used as a guide in order to facilitate managers to express their experiences. The same guideline was sent beforehand by fax or e-mail to interviewees for them to have an idea what to expect in the interview so to be prepared.

The idea of these interviews was managers to answer the questions and checkpoints in Appendix 4, and the results are presented as follows. The first part presents the general findings and there are the answers of the managers not in that great detail but in more

⁴ The researcher acknowledges that this methodology is exposed to different communications problem such as how executives words translated from Greek into English. For this reason a major effort is made for the most direct, neutral, and possible translation.

general terms, the rest of the parts report in more detail the MA issues that practitioners face in daily practice, thus, the second part presents issues about the administration of the company, the third part refers to costing methods, the fourth part presents the planning methods, the fifth part presents some performance evaluation issues and the last part the interview summary. The aforementioned categorization rose during the interview piloting phase and by asking respondents to focus in main interest areas.

The interview guideline consisted from open end questions in a philosophy of checklist of points. Berry *et al.* (2005) presents an interview framework where the interview schedule includes a checklist of topics to be covered. The advantage of this approach is that it enables performance management issues to emerge naturally during the interviews, rather than been raised by the researcher. The answers together with rest of respondents' comments are presented on the aggregate further below.

6.2 GENERAL FINDINGS

The majority of answers in the question "why organizations changed their control systems, in the last 3 years, to incorporate some of the most popular techniques" was due to mainly increased competition (strategy focused) and rapid changes in the respective business environment (technology influenced). Also, an additional reason was ownership; there are different controlling and reporting requirements when the organization is managed by family owners and different needs when is managed by executives. Also there are different needs when the organization is a local firm and different needs when is a large multinational firm with its headquarters located overseas. It has to be noted at this point that most of the firms of the fourth category (the ones that do not implement most of MAP) are family owned and are relatively new companies with average life of 10 years. Most of executives in this category recognized the benefits derived by implementing most of MAP and also admitted that it was very difficult to manage such large organizations. Usually the tools used for analysis in this category are mostly spreadsheet applications based on financial data derived from general ledgers. The majority of executives also admitted that are in the process of considering alternative solutions for adoption by their companies' techniques for decision making, planning and performance evaluation. A few managers stated that "It wasn't that difficult to reach the top, anyway you can make it by hard work and one way or another, the problem is to stay on that top for a long time. Relying on our existing systems does not give any confidence to look ahead. Indeed, we are in the process of selecting new tools and the respective personnel in order to face new challenges and fight competition".

Next, the task was to analyse and explore the influence on the organizations' MCS and MAS of the most popular contingent variables which are strategy and technology.

Strategy usually differs from other contingent variables because executives could influence the nature of the external environment, the technologies of the organization, the organizational structure, the control culture and the MCS. Strategy plays an important role as it dictates the criticism that contingency based research includes that an organization's MCS is designated by context and that managers' actions are characterized by their operating situation (Chenhall, 2003).

The taxonomies proposed to executives to declare where they belong were: entrepreneurial-conservative (Miller and Friesen, 1982), prospectors-analysers-defenders (Miles and Snow, 1978), build-hold-harvest (Gupta and Govindarajan, 1984), and product differentiation-cost leadership (Porter, 1980). A brief description was given before they declare where their organization belonged.

The results are presented in the Table 6.1 at the end of this chapter and can be concluded that: for manufacturing the most popular strategies are: prospectors-analysers, for services and commerce: entrepreneurial. Companies mostly implement traditional rather recently developed practices as proposed by the literature, and as mentioned above the performance indicators of these companies are better and much better than the respective industrial averages. The fourth category which does not appear on the Table is the one that most of the companies do not implement the majority of MAP, but report good performance results. These companies are family owned, declare almost complete ignorance of the strategies proposed, work on intuition, have only the instruments imposed by the law (financial accounting and cost accounting for tax purposes), are relatively new (less than ten years from establishment or conversion to large size with successful results), and most important are willing due to increasing needs (fierce competition, size growth, etc.) in the near future to adopt more sophisticated and professional tools.

Technology (generic) in organizations usually takes the meaning of organization's work processes including: hardware, software, knowledge, materials and people. Organizational literature presents three generic types of technology: Standardised automated processes, task uncertainty, interdependence, (Chenhall, 2003).

Standard automated process: When processes are more standardized and automated then more formal controls are required including process control and traditional budgeting reliability (Khandwalla, 1977; Merchant, 1984, 1985; Dunk, 1992). Task uncertainty: When technologies are characterized by high task uncertainty then there are more informal controls: less reliance on accounting performance measures, plans, operating procedures,

behaviour controls, more budgeting participation, personal controls, clan controls (Daft and Makintosh, 1981; Hirst, 1983; Abernethy and Brownell, 1997). Interdependence: when there is high interdependence there are more informal controls: less statistical operating procedures, more statistical planning reports, less focus on budgets, more cooperation between subordinates and superiors (Chenhall and Moris, 1986; Macintosh and Daft, 1987; Bouwens and Abernethy, 2000). A brief description was given to managers before they declare where their organization belonged.

The results are presented in the Table 6.2 at the end of this chapter and can be concluded that: the majority of the companies interviewed, from all three sectors, belongs to first category which is Standardized – Automated processes and again their practices are in accordance to literature, more specifically they implement: More standardized technologies, more traditional formal MCS, highly developed process controls, high budget use, high budgetary control, less budgetary slack. As far as the family owned organizations again they declare almost complete absence from any of the technologies proposed, but are willing to consider soon.

Technology (contemporary) many times is referred to advanced practices such as Just in Time (JIT), Total Quality Management (TQM), and Flexible Manufacturing Systems (FMS) such as Computer Assisted Design or Manufacturing (CAD/CAM). These practices are usually associated with broadly based MCS, informal and integrative mechanisms, are closely related to strategy and non-financial performance measurement. In the meantime these practices perfectly co-exist and many times act as supplements to financial performance systems (Chenhall, 1997; 2003). From the companies interviewed some declared implementation, or phasing in, some of these practices, more specifically: manufacturing (TQM: 3firms, FMS-CAD: 3, FMS-CAM: 2), commerce: JIT: 2, TQM: 3, services: TQM: 3. At the same time all these companies agree that these practices have a positive contribution on their positive results which are above the average in the respective industries.

Generally, in a direct question if some companies implemented TQM or JIT, by the book or have employed some specialized consultants a few respondents argued at this point that “All these practices are implemented directly or indirectly in our companies” and continued “For example quality is the leading issue in our company and we do everything possible to maintain high quality standards in all functions and divisions otherwise we are exposed to rough competitors. I’m sure that quality hides in mentality and not behind shiny labels, the hard task in this situation is by one way or another to keep high mentality levels”. A similar response received from another executive who said “In our company, for

economic reasons, we keep almost zero inventories. We are aware of JIT procedures; I don't see any practical differences from those who implement JIT and our company. A manual does not make the difference”.

Another reason why organizations changed their control systems, and MAS as well, was to incorporate some of the most popular techniques aiming at: first, better decision making, second, improved performance judging and third, better problem solving through qualitative departmental information. Some additional reasons were: changes in administrative and accounting practices, previous performance systems were not sufficient enough and occasionally produced misleading information, specialized personnel (management accountants, controllers, etc) needed or departed, turnover, current and more synchronized performance measurement systems, globalisation of Greek economy.

The main aims of control systems, in importance sequence, of the majority of firms are: quality promotion, sales promotion, cost control.

When asking practitioners to comment about their previous experiences in administrative – management accounting practices most of them referred to systems which produced inaccurate cost information and especially in overhead allocation distortions; low priorities in implementing management accounting tools; traditional costing and spreadsheets were the bases for any decision made; trivial in-house support; also the decision making process was mostly based on intuition and not on hard facts (both historical and predictive). The changes in practice were more than encouraging and the benefits were timely and accurate decisions.

The most popular problem with current control systems and MAS is that they cannot take full advantage of the capabilities of their information systems as yet still need some fine-tuning, some reasons are: in many cases accountants do not have the additional computer skills, additional custom made software is needed where companies in some cases are unwilling to contribute characterizing it as a “luxury”, changes in the information systems are so quick and rapid so companies in some cases cannot follow, besides the computer skills additional knowledge is needed in order to develop and exploit the respective systems.

The more favourite practices among accountants are those using more accounting information and figures, for managers the most favourite are those related to “strategic” tools. The most popular MAP among accountants were: budgeting for controlling costs, product profitability analysis and budget variance analysis, same as the ones ranked with the survey instrument (questionnaire), mainly because the majority of respondents were financial managers or financial controllers (old accountants). The most popular MAP -

strategic tools among managers (according to financial managers' remarks) were: formal strategic planning, strategic plans developed: together with budgets, detail budgeting systems for: linking financial position - resources and activities (e.g. activity based budgets), strategic management accounting: competitor appraisal based on published financial statements. Generally, managers also prefer budgeting as both forward looking and a good control mechanism. For senior management, business planning and feasibility studies (NPV and IRR) are also very popular as they provide great information for future decisions. The majority of managers declare that the aforementioned tools are mostly used for, in priority: control, performance measurement, and reward or correction purposes.

In practice, strategic planning has become the guide for every action taken and there is a rigorous evaluation process (feasibility studies) for every new idea - project. Also controlling the firm's performance through analytic (departmental) budgeting and key performance indicators (KPIs) is becoming more structured and well established. As discussed before, decision making has become more rapid and robust through those changes.

As organizations going through major technological changes new financial performance measures are being adopted by many organizations. Usually they link with currently used measures, and they are integrated into an overall control system. Currently, industries are in the process of introducing many new financial performance measures. Some of them are working with indicators that comprised of a mixture of financial and non-financial measurements, similar to Balanced Scorecard - BSC (Kaplan and Norton, 1992) and are related specifically to products (manufacturing, services, commerce), areas (services, commerce), channels (services, commerce), services (services). The idea is to observe the financial indicators as a result (lagging) and from the non-financial indicators (leading) to contribute into the business by taking the correct business decisions. Some latest non-financial indicators are: Labour turnover per department, market share per product – service, product shortage rates, and clientele renewal indicators.

As far as time implementation of various MAP, the questionnaire revealed that about seventy percent of practitioners declared that the average time for implementation, decision making and use in quality improvement program was more than five years. There was the same confirmation in the interviews. This automatically ceased our concern for time-lag between implementing a MAP and its effect being evident since most of practices exist for more than five years. More details in Appendix 3, Tables G1.1-G3.5.

6.3 ADMINISTRATION OF THE COMPANY

The main items discussed in this section were the major reasons for MAP development in the organizations, the management accountant's role, and the organization's administration style.

In most organizations interviewed, about 90%, had separate MA departments - from financial accounting, dealing with planning (long term – short term), cost accounting, and internal reporting, and both MA and financial accounting departments were under the same directorate, the finance division. The rest of the companies in the financial department – mainly bookkeeping - had from one management accountant to deal mostly with costing, these companies are of smaller size and their executives told us that the company did not have the “luxury” to employ more staff than the necessary.

In the majority of companies management accountants enjoyed a high profile in their companies and most of them were educated to a master's degree in business administration, and were in much better position than the financial accountants. Also, this situation had an effect on their salaries as well where management accountants had better salaries than the respective financial accountants even falling in the same educational level. Their work has characterized for their valuable contribution to company's administration, even partial but very valuable. Many executives noted that MA is only one part of a complicated bundle of informational and organizational structures. In many cases management accountants were in direct communication with the CEOs (chief executive officers) producing special reports, had a serious involvement in decision making and were encountered as a very valuable asset of their company. Some other executives noted also the danger with MA information since it attempts to measure the financial consequences of actions because it often looks objective and accurate (but some times it is not), therefore one executive stated “I would not rely solely in MA reports just to take a business decision” and continued “A company whose administrators try to make and control decisions only on the basis of accounting data is doubtly to remain in business for long”.

In 80% of the companies the MIS department was under the finance department and in most cases the computer analysts were under the management accountants' guidance for the internal management reporting construction and maintenance. There is a common idea among companies that in our days computer personnel should present flexibilities and therefore the software personnel's mission is to support first the top management and then to produce software for others such as production, etc. Thus, with minor exceptions executives felt that MA software and MCS software of their companies were very well supported. Also, in the majority of companies managers had to access

information on-line and printed reports were no longer produced or produced upon request. In the rest 20% of companies the MIS department was a separate division and reported directly to the CEO. This minor percent is in accordance with MIS theorists (Ballas and Venieris, 1996, p.131) who support the argument that MIS should be an independent group in order to contribute to strategy formulation. The findings of this study support the issue that MIS specialists can contribute to firm strategy regardless the department where they belong, one executive wanted to focus in this issue said “there are many departments here but only one firm”. Also most companies had a special management accounting software usually part of the financial system where in house support was provided.

In 80% of the companies it was clear what guides MA development in the Greek firms surveyed. The main reasons were: Education of employees (degrees, post graduate studies, seminars, professional courses, etc), practice transfer from parent companies, innovations in MIS technology, management consultants. This is in contrast with Ballas and Venieris (1996) when referring to MA development they had commented “No clear picture emerged as to what guides management accounting development in the Greek firms surveyed” (ibid. p.131).

6.4 COSTING METHODS

All the firms interviewed implemented some variation of traditional costing techniques. Executives were asked to refer on how these methods were practiced and whether they were satisfied with the costing provisions of the Accounting Plan. Additionally, they were asked whether any recently developed costing methods, such as ABC, were in application or under the intention for implementation.

Cost information is implemented by the Greek organizations mainly as a basic element in pricing and therefore in marketing strategy, more specifically the price of the product is one basic factor in the company’s marketing plan. The marketing strategy will be formulated to achieve the firm’s goals where in many cases are represented by cash maximization. The determination of selling price for the company’s products in combination with the appropriate quantity sent in the market make evident a tight relation between the management accountant and the marketing people of the company. A second area where cost information is useful is in production planning and in a few cases some executives referred to internal opportunity costs calculations and more specifically to constraint calculation (such as labour and storage space).

An other area where cost information is very useful is product and client assessments. Also 90% of the companies interviewed claimed that the most important

implementation of cost information is the periodic computation of profit as a base for further business decisions. Besides the annual profit computation most of companies use provisions and forecasts to calculate profit on monthly basis, mostly for control purposes, executives in these companies said “by doing so we try to avoid unpleasant surprises”.

All companies of our sample followed the practices of Hellenic General Accounting Plan (HGAP) – it is mandatory by law for the SAs (Societe Anonyms), a category in Greece where all large and medium-sized companies belong and the ones included in this survey sample too. Therefore most the companies of this sample implemented absorption costing (or full costing) some of them just for tax law obligations only. Some others use a second or even third method of costing for internal purposes such as standard costing and job order costing (in manufacturing). Most of these firms support the idea that the auxiliary costing methods mostly used for controlling purposes and contribute positively to the companies’ results. Besides the criticisms mostly for standard costing (Drury, 1999; Hansen and Mowen, 2002) many companies use it for planning and control purposes.

General expenses or overheads were identified as a term with the same and clear meaning among our companies and in the majority of cases based on HGAP definition in combination with past practice as well; this is in contrast with Ballas and Venieris (1996) where they mentioned that “the definition of overheads varied considerably among the companies of our sample...”

Activity Based Costing (ABC) was quite popular in this sample, 60% of the companies used ABC as a primary or secondary costing method. ABC appeared to be favourite among the executives of our sample and they commented that “In the last 10 years ABC has become a favourite accounting tool for managers in Greece and the base for ABM (Activity Based Management), and the main reason for this is that it produces more accurate cost information for product costing”. This statement is in accordance with Cohen (2005) where she notes “...Greek companies show a growing interest towards ABC in recent years”. Most managers, even those did not implemented ABC, were aware of ABC and its context.

Some companies insisted to continue to implement traditional costing methods mainly because their executives were satisfied with them, planning and controlling were in satisfactory levels and hence they were reluctant to experiment any new ideas.

6.5 PLANNING METHODS

In this section it was anticipated to have information regarding short and long term

planning. For the short term planning the issues executives were mostly interested to comment were budgeting and the cash budget. For the long term planning the respective areas were cash flow estimation, cost of capital, NPV and IRR, payback method, accounting rate of return.

As far as short term planning and more specifically budgeting executives were willing to comment about issues such as budget period, budgeting teams, revisions, reporting issues and whether budgeting was a product of collective work or prepared from the top management team and was just a document to follow.

The main question asked to managers was how the budget was implemented and for what purpose, and the most popular replies, in preference order, was: first as a guide for planning, second as a control instrument, and third, as a motivation tool.

Budgeting and planning: Under this heading firms of our sample employed different kinds of planning, the most usual were: a) Operating plans – annual plans which relate directly to the achievement of the company's objectives, such plans were: sales and production plans and the respective financial plans in order to support the first two. In this category the budgeting procedure started usually up to four months before the year end. b) Administrative plans – these were “formal” plans related with the organizational structure, under which budgets and performance standards can be determined for appropriate operations, this process usually is among the top executives. c) Long-term strategic plans: these plans were associated with the long range development of the organization's strategy and usually expressed in more general terms; again this process is for the top management team usually the president, CEO, the board of directors, the production and the financial managers and is for at least the next five years.

Budgeting and control: Executives under this category expressed their sound agreement about budgeting usefulness for controlling purposes. Most executives admitted that one of the basic tools for control in their companies is budgeting. After the final and official agreement of plans, actions are taken and reports are generated to determine that events are according to plan and the creation of favourite and adverse variances.

Budgeting and motivation: Managers under this category underlined their experiences about human relations inside the company which are heavily influenced under the budgeting process. Usually behavioral problems arise between managers and subordinates, directors and managers, and superiors to superiors (manager or director) because budgeting most of the times is about negotiating (salaries, bonuses, production levels, etc). Everybody agreed to two basic rules. First, budgets should not be set too tight so individuals not to become discouraged in their tasks and not attempt to meet objectives,

also should not be set too low so employees to become self-satisfied and inefficient, and finally perform under their actual potential. Second, employee participation in the budgets should be encouraged aiming at improving group performance and commitment to higher but achievable goals. All executives noted that the budgeting process in their organizations was a fully participative process from lower-level managers up to the top. Here, some companies reported that budgeted sales and profits were set higher than the year before as a motive for the sales and production people to achieve higher levels of performance. In cases where the actual figures were higher than the budgeted ones most employees received a bonus, usually fractions or multiples of their salaries, depending on the hierarchy level. In some companies managers were allowed to set their own goals for the beginning which latter on revised in order to derive at achievable figures. General guidelines were always issued and managers had to perform their calculation in relation to them. This is in contrast with Ballas and Venieris (1996) where they reported "Guidelines were very rarely issued", (ibid, p.133).

In all companies there were budgeting committees usually constituted from all division heads of the firm and after several revisions were made in order plans to be compatible with reality, budgets submitted to top management (usually the CEO and the president) for approval. Most participants were encouraged to be careful with turnover and expenditure figures so to have small variances afterwards. Also cash flow plans were prepared in the majority of the firms. In a few cases where companies were subsidiaries of multinational groups approval had to be from the headquarters abroad. After the budget was approved (mostly the operating annual plan) it was distributed to all departmental heads who in turn assured that all employees were aware with the companies' annual objectives. All companies participated in the sample, implemented zero based budgeting, meaning they calculated all figures from the beginning for each new year. Project plans which were in process usually reviewed twice a year.

Most of the sampled companies, about 80%, prepared long term plans (up to 5 years) and covered most activities of the firm. Most companies reported the awareness and use of traditional appraisal methods for capital investment for their long term planning such as NPV, IRR, payback, and ARR.

All sampled firms which were professionally managed (not family owned and managed) were aware that the ability of their firm to operate at different levels of activities was heavily depended by the nature of the long term assets at its disposal. For example if a firm wants to reach higher levels of production or exploit new markets opportunities it has to invest more in productive equipment and acquire new technologies. The capital

investment decision making is not an easy procedure. All of the times requires a very careful procedure where engineers and accountants usually meet to decide further actions. More specifically, when a project has been found, examined and defined is when the accountant's functional role becomes important. It is the significant evaluation level that the accountant draws together the cash flow analysis relating to the costs and benefits of the project and seeks to determine its financial approval. The additional sales revenue produced usually will affect the confirmations of both sales director and management accountant. If the financial analysis confirms that the project is worthwhile then the project is accepted for the investment.

Most of companies implemented the NPV method had difficulties to determine the appropriate interest rate of discount rate to discount future cash flows to their equivalent present value. This rate is mostly known as the cost of capital and in most cases is difficult to measure. Some financial executives from the companies interviewed supported the view that the cost of capital should measure the minimum return required by long term funds. Their firms raised their long term funds from two major sources, first is equity capital which are the funds contributed by the owners-shareholders of the firm and second, debt capital which are funds contributed by major financial institutions. So difficulties arise when firms have to calculate the cost of capital which includes both the cost of equity capital (dividends) and the cost of debt capital (interest). For this it is necessary to calculate the various costs of the different long term sources of funds, and second to combine them into a weighted average cost of capital (WACC).

The same companies who utilized the NPV method used as well as the IRR method which unlike the NPV method it does not generate a cash figure to determine whether a project should be undertaken but rather tries to combine the discount rate at which the NPV of a project is zero. By this way a project is rejected or accepted in percentage terms and not in cash terms, it expresses net returns as a percent of investment cost. At this point some executives made a reference to unorthodox cash flows (change of sign in cash flows from positive to negative), and they commented at this point that "Since IRR includes some technical difficulties, NPV is preferred as a method for project evaluation with unorthodox cash flows".

Also some managers have reported the use of the payback method, which is referred as the simplest of the non-discounting methods. This method is estimating the time period, usually the number of years, over which the cost of any particular investment is returned back. This period is then compared to some standard period to decide whether the project is acceptable. Executives commenting on this method reported two main

problems. It ignores both the existence and timing of cash flows generated after the payback period. The reason why is used after bearing such faults is because the payback method does not require the use of sophisticated methodology of discounting methods. A few managers noted "Usually the payback method is used first for quick calculations and if we have positive results then we employ more sophisticated methods".

Some other executives reported the use of ARR, a method which can be computed in different ways and usually rely in traditional accounting profit numbers rather than on cash flow numbers. A most common way of computing the ARR was by dividing an anticipated investment's annual net profit by either the total investment cost, or the average book value of the investment. Some weak points mentioned for this method were: It uses accounting profits rather than cash flows and it ignores the time value of money. Also, similarly to IRR the ARR method deals with ratios and does not mention anything about the size of the projects. Some managers noted at this point that "...This, in the same way as IRR, could be a problem if we deal with mutually exclusive projects".

6.6 PERFORMANCE EVALUATION

In this part managers were asked in more detail about the use of management accounting information and reporting for performance evaluation. Two were the main questions of our concern. First, which was the most widely implemented costing method and whether companies implemented standard costing. Second, on performance evaluation how did they deal with deviations from the actual budget and whether there were any consequences on their salaries and careers.

Standard costing is a very popular costing method in Greece. Standard costing is described as a technique which compares standard costs and revenues with actual results to obtain variances which are used to stimulate improved performance (CIMA, 1996, p.27). Standard cost is the planned unit cost of the products, components or services produced in a period. The standard cost may be determined on a number of bases. The main uses of standard costs are in performance measurement, control, stock valuation and in the establishment of selling prices (Ibid, p.47). When executives in our sample were asked whether their companies computed standard costs (labour, materials, overheads), 50% replied positively. Also periodic revisions made to all standard cost categories at least once a year and always before the beginning of the budget period. Standard cost figures were used in most cases and together with last year's numbers as a base for the next year's budget. Executives summarized the usefulness of standard costing in three areas. First, it provides the administration with a guide for performance evaluation, second, notes any

deviations between business operations and plan, and third, generates information for future standards.

Most companies did their performance measurements by comparing the actual figures occurred from the budgeted ones and then had a variance analysis. The majority of companies issued monthly reports and compared results every month. A few companies did the same process on a quarter basis. Only one company issued annual comparison reports. There were a few companies where due to change of market or company conditions they reported budget revisions usually in the middle of the year. Executives, in most cases, had to give a written report explaining their favourable or adverse variances from the budget figures. In most cases when there was a positive variance usually there was a bonus at least to the division heads. Some companies gave bonus to most employees but usually there was a common rule that the higher the position the higher the bonus. Also managers did not report any serious negative effects on their careers in case of negative variances. In cases of positive variances and if there was a repetition for a few years the ones that enjoyed more benefits for their career were the middle-managers. Kinds of benefits included: company cars, car benefits such as fuel, maintenance, rubber change, car insurance paid by the company, etc, mobile phones, etc. Almost all managers agreed with the theoretical view that budgets are used most of the times for managerial or divisional performance evaluation (Garrison and Noreen, 2003; Hansen and Mowen, 2002; Hilton, 2002).

6.7 SUMMARY

For the Greek firms management accounting used to be more fiscal oriented. This attitude has been changed in the last ten years where the fiscal role is left to financial accountants and tax experts. For the average Greek firm management accounting is a vital part of a modern organization and the role of management accountant has been upgraded dramatically and mostly is seen as a business partner who contributes valuable expertise in crucial business decisions. Greek firms used to be small by international standards, and were family-owned and managed. This situation has changed some time ago. Companies are operating in multinational environments, are listed in local and foreign stock exchanges, there are many subsidiaries of foreign multinational companies, and most firms managed by professionals. This is in support of Blake *et al.* (2003) where they state: "For Greece, by contrast, the lack of foreign influence seems attributable to a basic lack of interest, until recently in management accounting" (Ibid, p.183). The interviews performed in selected companies revealed that MA in Greece has a high profile even by

international standards. Modern cost methods are already implemented and some others are under consideration. Planning methods are used extensively for the short and long term. Undoubtedly, there are differences in the application of most traditional and modern MAP and other methods (such as TQM, JIT, etc) versus the European or other multinational companies overseas, but these are mostly due to culture and managerial philosophy of Greek managers.

Management accounting information is the primary source for production and general planning, for pricing formulation, and for performance evaluation. Comparing with previous studies, MA practice in Greek firms has been upgraded remarkably in the last ten years. Most management accountants are educated to a master's degree and usually hold an additional professional certificate (CIMA or similar or local variation). All these improvements and innovations have added positive effects to the firms and definitely reflect positively on their financial and non-financial performance.

In addition, managers believe that the most usual contextual factors (internal-external) that affect their organizations interest in adopting new practices or remove non-useful ones are: fierce market competition, management philosophy, external consultants. The majority of practitioners agree that the most popular tools arise from the actual daily work. If management and employees find some practice useful then this tool is being adopted and it evolves according to the company's needs and requirements. Also as mentioned in the General Findings section above, strategic planning, feasibility studies, budgeting, introduction of KPIs and the establishment of structured processes, methodologies and tools to support them, have delivered great benefits to organizations having a positive effect on their financial and non-financial performance.

Table 6.1: Distribution of companies per sector and following strategies

Strategies	manufacturing	commerce	services	MCS Characteristics - Literature propositions	MCS Mostly implemented by practitioners
Conservative	0	0	0	Formal, traditional MCS focused on cost control, specific operating goals and budgets and rigid budget controls.	
Entrepreneurial	1	4	4	Formal and traditional MCS and organic decision making and communications.	Traditional: Formal strategic planning, Capital budgeting (NPV, IRR, ROI), Long range forecasting, Detail budgeting systems: Planning cash flows, Planning financial position, Cost Analysis (Absorption or Full costing, Process costing), Performance evaluation based on divisional profit. Contemporary: Activity based management, Performance based on : (Non-financial measures, team performance, qualitative measures, customer satisfaction surveys), Strategic Management Accounting: (Target costing, Competitor appraisal based on published financial statements).
Prospectors - Analysers	4	2	3	Interactive budgeting, competitor focused accounting, competitor cost assessment, competitive position monitoring, competitor assessment based on published fin. statements, strategic costing, strategic pricing	Traditional: Formal strategic planning, Capital budgeting (NPV, IRR, ROI), Long range forecasting, Detail budgeting systems: Planning cash flows, Planning financial position, Cost Analysis (Absorption or Full costing). Contemporary: Activity based management, Performance based on : (Non-financial measures, team performance, qualitative measures, customer satisfaction surveys), Strategic Management Accounting: (Target costing, Competitor appraisal based on published financial statements).

Strategies	manufacturing	commerce	services	MCS Characteristics - Literature propositions	MCS Mostly implemented by practitioners
Defenders	0	0	0	Formal, traditional MCS focused on cost control, specific operating goals and budgets and rigid budget controls.	
Build - Hold	1	1	0	Subjective and long term controls, competitor focused accounting, competitor cost assessment, competitive position monitoring, competitor assessment based on published fin. Statements, strategic costing, strategic pricing	Traditional: Formal strategic planning, Detail budgeting systems: Planning cash flows, Planning financial position, Cost Analysis (Absorption or Full costing). Contemporary: Performance based on : (Non-financial measures, customer satisfaction surveys), Strategic Management Accounting: Competitor appraisal based on published financial statements.
Harvest	0	0	0	Low specialization, difficulty in measuring outcomes.	
Product differentiation	2	2	1	Broad scope MCS for planning purposes, and customisation strategies are associated with aggregated, integrated and timely MCS for operational decisions.	Traditional: Formal strategic planning, Capital budgeting (NPV, IRR, ROI), Long range forecasting, Detail budgeting systems: Planning cash flows, Planning financial position, Cost Analysis (Absorption or Full costing, Process costing), Performance evaluation based on divisional profit. Contemporary: Activity based management, Performance based on : (Non-financial measures, team performance, qualitative measures, customer satisfaction surveys), Strat. Man Accounting: (Target costing, Competitor appraisal based on published financial statements).

Strategies	manufacturing	commerce	services	MCS Characteristics - Literature propositions	MCS Mostly implemented by practitioners
Cost leadership	2	1	2	Formal, traditional MCS focused on performance measurement by cost control, specific operating goals and budgets and rigid budget controls.	Traditional: Formal strategic planning, Capital budgeting (NPV, IRR, ROI), Long range forecasting, Detail budgeting systems: Planning cash flows, Planning financial position, Cost Analysis (Absorption or Full costing). Contemporary: Activity based management, Performance based on : (Non-financial measures, team performance, qualitative measures, customer satisfaction surveys Strategic Management Accounting: (Target costing, Competitor appraisal based on published financial statements).
Total	10	10	10		

Table 6.2: Distribution of companies per sector and following technologies

Generic Technologies	manufacturing	commerce	services	Characteristics - Literature propositions	MCS Mostly implemented by practitioners
					MCS Mostly implemented by practitioners
Standardized - automated processes	8	8	9	More standardized technologies - more traditional formal MCS - highly developed process controls - high budget use - high budgetary control - Less budgetary slack	Traditional: Formal strategic planning, Capital budgeting (NPV, IRR, ROI), Long range forecasting, Detail budgeting systems: Planning cash flows, Planning financial position, Cost Analysis (Absorption or Full costing, Process costing), Performance evaluation based on divisional profit. Contemporary: Activity based management, Performance based on : (Non-financial measures, team performance, qualitative measures, customer satisfaction surveys), Strategic Management Accounting: (Target costing, Competitor appraisal based on published financial statements).

Generic Technologies	manufacturing	commerce	services	Characteristics - Literature propositions	MCS Mostly implemented by practitioners
	0	0	0	Less standardized technologies - less traditional formal MCS - less developed process controls - less budget use - less budgetary control - More budgetary slack	
Task uncertainty	2	2	1	More participation in budgeting, more personal controls, clan controls, and usefulness of broad scope MCS	<p>Traditional: Formal strategic planning, Capital budgeting (NPV, IRR, ROI), Long range forecasting, Detail budgeting systems: Planning cash flows, Planning financial position, Cost Analysis (Absorption or Full costing).</p> <p>Contemporary: Activity based management, Performance based on : (Non-financial measures, team performance, qualitative measures, customer satisfaction surveys), Strategic Management Accounting: (Target costing, Competitor appraisal based on published financial statements).</p>
Interdependence	0	0	0	<p>Less reliance on standard operating procedures, programs and plans, accounting performance measures, behaviour controls</p> <p>High level: More informal control, fewer statistical operating procedures, more statistical planning reports and informal coordination, less emphasis on budgets and more frequent interactions between subordinates and superiors, greater usefulness of aggregated and integrated MCS</p>	
Total	10	10	10		

CHAPTER 7 - DISCUSSION, CONCLUSIONS AND FUTURE RESEARCH

In Chapter One, a framework was introduced that proposed a relationship between management accounting practices (MAP), internal and external contingent factors and firm performance. In Chapter Two, several streams of literature were reviewed and integrated, including accounting and control, management accounting and control systems, the contingency theory, and the interpretive theory. Based on these research streams, Chapter Three further specified a model and presented some propositions relating key constructs of the model. Chapter Four profiled the qualitative and quantitative research methods employed to test the proposed relationships in a sample of firms from manufacturing, commerce and services.

Financial managers, controllers and senior management accountants were asked to answer questionnaires in order to identify MA tools contents as well as internal and external contingencies and their influences on companies' financial and non-financial performance. Following pretests, final questionnaires were sent to 415 large and medium-sized Greek companies. Multiple regression analysis was performed on total 198 responses to determine the association between the use of MAP, selected internal and external contingent factors and investigate the positive or negative effect in organizational performance (financial and non-financial). Also, the structure of key MAP was assessed based on average responses by top financial executives. The results of this research, reported in Chapter Five, provide insight into the MAP concept and each of the proposed relationships of the model. Additionally, there is an extensive analysis about the traditional and recently developed MA tools and the relative benefits for the firm. Also in order to have a thorough understanding and "read" between the lines of the questionnaire a series of interviews were performed and results were presented in Chapter Six. The interviews were addressed to ten companies of each sector (manufacturing, commerce, services), reporting above the average performance results and practicing various MAP and ten companies with good performance results but without practicing most of MAP, from all sectors. The total number of the companies interviewed was forty.

Chapter Seven is divided into four sections. First the results are discussed based on questionnaire and interview analyses. The second section identifies contributions and implications of the research to management accounting theory, management control system theory, methodology and practice. The third section outlines the limitations of this research. The final section discusses directions for future research.

7.1 DISCUSSION OF RESEARCH RESULTS

The study's findings support contingency theory's tenet of no universally appropriate MA system, with factors such as strategy and technology having a significant bearing on the successful application of a further MCS. Also interpretive theory is confirmed as well since manager's choices are critical to the scanning process (when information is collected), the interpretation process (when information is given meaning), and the strategic action process (which affects firm performance). In order to fit MAP in Greece into this framework this study attempts to analyze current practices and place them in their organizational, social, economic and historical environments.

This research clarifies key relationships and integrations among management accounting practices (implementation significance and benefits gained), internal and external contingent factors and firm performance influence. The empirical results of this dissertation reveal that organizational performance is related to MAP content. Also internal and external contingent factors influence firm performance. These findings provide important and analytical insights among management accounting, control systems, and firm performance. This part of discussion is divided in five sections. First, taking the questionnaire analysis there is discussion on MAP implementation significance and benefits gained, second, discussion on MAP model analysis and hypothesis testing, third, some additional issues on contingent factors, fourth, taking the interviews analysis there is a discussion on the two major contingent factors which revealed by the interviews, strategy and technology, and fifth, there is a discussion on the rest MAP important issues raised during the interviews.

7.1.1 Management Accounting Practices (MAP)

As mentioned in Chapter 5, in order to adopt a more conceptual framework of analysis, the MAP classification of Chenhall and Langfield-Smith (1998c) was used which is similar to classification used in the questionnaire; the total number of items remained the same.

The following classification was adopted:

- performance evaluation practices (financial (F) and non-financial (NF)),
- planning practices (short (P) and long term (P LT)),
- strategically oriented practices (SP).

Performance Evaluation Practices

Performance evaluation is a significant task of management accounting (Emmanuel *et al.*, 1990). Special attention has been assigned to the benefits derived from financial compared to non-financial measures (Lynch and Cross, 1992). Performance evaluation is divided in two major categories of measurement the financial measures and the non-financial measures.

Bhimani and Langfield-Smith (2007) empirical results indicate that strategy development and implementation activities tend to be structured and formal, and while greater emphasis is placed on financial information in strategy implementation, in strategy development both financial and non-financial information are used. Differences however prevail across firms as to what is considered to be strategic and the role played by financial and non-financial information varies across companies. A high degree of organization specificity also exists in the uses of strategic accounting information.

Financial Measures

The findings of the current study confirm the importance, including Greece, of financial measures of performance. High implementation rates apply for the following MA tools: Detail budgeting systems for: Controlling costs, Planning – Operational Budgeting, Performance evaluation is based on: Budget variance analysis, Return (profit) on investment, Decision support systems: Product profitability analysis. More details and analysis in Table A5 in Appendix 3.

The importance of these practices is confirmed by practitioners when examining the benefits gained from these techniques. So according to practitioners' experience, significant benefits received by practicing various traditional techniques such as: Detail budgeting systems for: Controlling costs, Decision support systems: Product profitability analysis, Performance evaluation is based on: Budget variance analysis, Return (profit) on investment, Detail budgeting systems for: Planning – Operational Budgeting. These findings are in accordance with various researchers who have presented evidence that financial measures of performance are very important in many countries (Ballas and Venieris, 1996; Israelsen *et al.*, 1996; Bhimani, 1996; Chenhall and Langfield-Smith, 1998). Also, Szychta (2002) reports the same investment appraisal methods used in Poland like the ones used in this survey instrument (Capital Budgeting, items 1.2.1-1.2.5) but the adoption rates are between 15-40%, while in current study the respective use is between 66-86%. Similarly, Haldma and Laats (2002) referring to similar costing methods (items 3.1-3.7) in Estonian organizations report implementation rates between 7-55% while

in this study the respective use is between 61-73%.

Non-financial Measures

Drury (2000) states that financial summaries of performance provide only a limited view of the efficiency and effectiveness of actual operations. In today's competitive environment organizations shift their focus on product quality, delivery, reliability, after sales service, customer satisfaction and other non-financial measures. Lately non-financial measures along with financial play an important role in strategy formulation (Bhimani and Langfield-Smith, 2007).

The non-financial measures were included in mainly high and medium categories of implementation. Thus, in the high implementation category were the following MA tools: Detail budgeting systems for: Compensating managers, Performance evaluation is based on: Customer satisfaction surveys, Ongoing supplier evaluations, Employee attitudes, Team performance, Qualitative measures, Non – financial measures, while in low implementation category was the Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures). These items could be used in areas of strategic importance (McNair and Mosconi, 1989; Lynch and Cross 1992).

The importance of these practices is also confirmed when examining the benefits gained from these techniques. The benefits gained for practicing non-financial techniques which in this case are rather medium to low importance. Hence, of significant importance were the Performance evaluation is based on: Customer satisfaction surveys, Ongoing supplier evaluations. Of medium benefits were Performance evaluation is based on: Qualitative measures, Detail budgeting systems for: Compensating managers, and of low benefits received were the Performance evaluation is based on: Team performance, Employee attitudes, Balance scorecard (mix of financial and non-financial measures), Non – financial measures.

These findings suggest that financial performance measures continue to be an important part of management accounting practice, including Greek firms, supplemented with a variety of non-financial ones. Ballas and Venieris (1996) had reported a similar situation for Greece regarding financial and non-financial measures with financial measures to be of high importance for the companies. This study presents evidence that financial performance measures continue to enjoy high appreciation in implementation order compared with the non-financial ones. Most of them are falling in the *high implementation* category where non-financial ones are distributed almost 50% in the *high implementation* and 50% in *medium* and *low* implementation levels. Similar situation

applies for the *past benefits gained* and *future emphasis*. In general financial measures continue to enjoy higher appreciation than the non-financial ones.

Planning Practices

According to practitioners' preferences the most representative techniques of this category are: budgeting for short term resource planning, and capital budgeting and strategic planning for the long term.

The most favourite (highly implemented) traditional planning techniques of short term practices were: Detail budgeting systems for: Planning - Cash flows, Planning - Financial position. Of medium implementation importance were: Detail budgeting systems for: Planning - Day-to-day operations, Operations research techniques, Cost analysis: Standard Costing, Decision support systems: Cost volume profit analysis (e.g. breakeven analysis), Cost analysis: Project Costing. Of low implementation importance were: Marginal / Direct Costing, Job Order Costing, Absorption or Full costing, Process Costing. The most favourite traditional planning techniques of long term practices were: of high implementation rates, Formal strategic planning, Strategic Plans Developed: Together with budgets, Long Range Forecasting, Capital Budgeting: Net present value (NPV), Return on Investment (ROI). Of medium implementation importance were the techniques: Capital Budgeting: Payback period, Internal rate of return (IRR), Strategic Plans Developed: Separate from budgets. Of low importance was the tool: Capital Budgeting: NPV sensitivity analysis.

The importance of these practices is also confirmed when examining the benefits gained from these techniques. Thus of significant benefits received were: Cost analysis: Absorption or Full costing, Detail budgeting systems for: Planning - Day-to-day operations, Planning - Cash flows, Cost analysis: Job Order Costing, Project Costing, Decision support systems: Cost volume profit analysis (e.g. breakeven analysis). Of medium importance benefits received were: Detail budgeting systems for: Planning - Financial position, Cost analysis: Standard Costing, Operations research techniques. Of low benefits received were: Cost analysis: Process Costing, Marginal / Direct Costing.

For long term planning techniques of significant benefits received were: Formal strategic planning, Strategic Plans Developed: Together with budgets, Capital Budgeting: Net present value (NPV). Of medium benefits received were: Long Range Forecasting, Capital Budgeting: Return on Investment (ROI), Capital Budgeting: Internal rate of return (IRR), Payback period. Of low benefits received were: Capital Budgeting: NPV sensitivity analysis, and Strategic Plans Developed: Separate from budgets.

These findings suggest that both formal strategic planning and traditional budgeting systems provide high benefits for the organizations, also besides performance evaluation, management accounting provides information for planning (Emmanuel *et al.*, 1990). Relatively lower benefits were reported for long range forecasting which usually supports strategic planning. Also these findings support the view, including Greece, that strategic planning is implemented by many companies and contrasts with an older view that formal strategic planning is not implemented enough and does not improve performance (Mintzberg, 1994; Carr and Tomkins, 1996).

Strategically focused practices

Lately developed strategic management accounting (SMA) methods including product life cycle, target costing, value chain analysis, activity based costing, benchmarking and shareholder analysis are presented as the missing links between operations and organizational strategies and objectives. Also are presented as stopovers for other administrative practices such as just in time, quality management, etc (Bromwich and Bhimani, 1994; Cooper, 1998). One of these popular practices is ABC. Ballas and Venieris (1996) reported that by that time activity-based methods were not implemented in Greece. Later on Cohen *et al.* (2005) reported that in Greece there is an increasing rate of ABC adoption in recent years, also companies which implement ABC do not use it as a mean to improve cost measurement accuracy but rather as a management tool with multiple functions.

However, evidence from the current study, Table A5, ranked the implementation of ABC methods such ABC and activity based management as relatively low. On the opposite Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets) is highly adopted due to budgeting and financial factors. It is noticeable the level of adoption of these techniques, which is higher than previous studies, for example Cohen *et al.* (2005) reported a total of 36 companies which implemented ABC out of 88 companies sampled, this result declares an implementation rate of 40%. The current study reports 142 users of ABC (implementation rate 71%) and 127 users of activity based management (ABM), (implementation rate 64%), out of 198 companies sampled in total. This situation declares that there is an increasing trend of ABC implementation in Greece. The benefits though gained from practicing ABC were in moderate ranking and low from ABM, on the opposite site high benefits gained are reported for Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets).

Strategic Management Accounting techniques in this study were mainly to medium and low implementation levels. Thus, Competitor appraisal based on published financial statements, was the only one highly implemented. Of medium implementation were: Competitor cost assessment, Quality costing, Strategic pricing, Target costing. Of low implementation were: Attribute costing, Strategic costing, Life cycle costing, Brand value budgeting and monitoring, Value chain analysis. The relative benefits received from implementing the strategic management accounting techniques were mainly to low category. Thus, medium benefits received the organizations by practicing the following techniques: Competitor appraisal based on published financial statements, Target costing, Competitor cost assessment. Low benefits were reported for the following categories: Strategic pricing, Life cycle costing, Quality costing, Attribute costing, Strategic costing, Brand value budgeting and monitoring, Value chain costing.

Some recently developed techniques were found to be low adopted and give low benefits as well. These are, Decision support systems: Product life cycle, Value chain analysis. The benefits received were found to be low as well.

Benchmarking was not important to most of the firms surveyed. Benchmarking within the wider organization was the only item highly implemented. Benchmarking: with outside organizations, Strategic priorities, Product characteristics, Management processes, Operational processes were of medium implementation. Benchmarking carried out: Value chain analysis was on the low adoption side. While adoption rates are relatively moderate and low the benefits received from practicing the respective techniques enjoyed better appreciation, Table A6. With the exemption of Benchmarking carried out: With outside organizations - highly benefited, all rest are of moderate benefit received: Benchmarking carried out: Within the wider organization, Benchmarking of: Management processes, Operational processes, Product characteristics, Strategic priorities.

Similar findings regarding SMA reported by Guilding *et al.* (2000) where they report that "Competitor accounting and strategic pricing appear to be the most popular SMA practices" (Ibid p.128), respectively high and medium implementation in the current study. In the same study strategic costing, quality costing, value chain costing scored above the mid-point of the perceived merit while in the current study the same techniques ranked in the low category of significant benefits gained from implementation. These findings confirm Ghoshal *et al.* (1991) and Foster *et al.* (1994) reported gap between what the organizations need and what they supplied by their accounting systems could be extended to SMA systems more generally (Guilding *et al.*, 2000). Also Langfield-Smith in a last twenty five year review reports that SMA or SMA techniques have not been adopted

widely, nor is the term SMA widely understood or used. However, aspects of SMA have had an impact, influencing the thinking and language of business, and the way in which we undertake various business processes. These issues cut across the wider domain of management, and are not just the province of management accountants (Langfield-Smith, 2007).

Future emphasis on management accounting practices

To emphasize future directions the survey investigated the intention of firms to exercise each management accounting practice over the next 3 years. The intention of firms is presented on the right hand side of Table A6. Organizations maintain their interest on financial practices to continue to be important in the future. For example the importance for Detail budgeting systems for: Controlling costs which received the highest rank for benefits received, was confirmed for high future emphasis. Similarly, Decision support systems: Product profitability analysis continues to be important for future use. Performance evaluation is based on: Budget variance analysis was also regarded as having continuing relevance in the future. Performance evaluation is based on: Return (profit) on investment will attend the same emphasis in the future, Detail budgeting systems for: Planning – Operational Budgeting will continue of high emphasis, Performance evaluation is based on: Controllable profit will continue with medium emphasis, Performance evaluation is based on: Divisional profit will be highly emphasized. Performance evaluation is based on: Residual income (e.g. interested adjusted profit) low benefits gained from implementation and the future emphasis is ranked low.

As far as the non financial practices practitioners reported that they will continue to focus on them although in a smaller degree than the financial ones. Thus, Performance evaluation practices such as: Customer satisfaction surveys and Ongoing supplier evaluations they have scored high in the past benefits their future preference is of high priority as well. The practices of Performance evaluation is based on: Qualitative measures and Detail budgeting systems for: Compensating managers even they had scored medium in the past benefits their future preference is of high priority. The practices of Performance evaluation is based on: Team performance, Employee attitudes, Non – financial measures even they had scored low in the past benefits their future preference is of medium priority. The practice of Balance scorecard (mix of financial and non-financial measures) had both scored low both in the past benefits and for the future use.

Practitioners noted that traditional short-term planning techniques will continue to enjoy future attention. The future emphasis for Detail budgeting systems for: Planning -

Cash flows, Detail budgeting systems for: Planning - Financial position, had high and medium rankings for past benefits. Detail budgeting systems for: Planning - Day-to-day operations had highly benefited. Decision support systems: Cost volume profit analysis (e.g. breakeven analysis) and Operations research techniques have received medium emphasis and in the past benefits had received high and medium benefits. Some of the Cost Analysis methods received a low future emphasis while in past benefits had high and medium rankings. Thus, Cost analysis: Project Costing, Cost analysis: Job Order Costing, Cost analysis: Absorption or Full costing, received a low future emphasis had high rankings in past benefits. Same situation for the Cost analysis: Standard Costing, low future emphasis and had received medium past benefits. The last two of short-term planning which had low future emphasis and low past benefits were the Cost analysis: Marginal / Direct Costing and Cost analysis: Process Costing had received low past benefits.

For the long term planning practices practitioners increased their future emphasis, thus: Formal strategic planning, Strategic Plans Developed: Together with budgets, Capital Budgeting: Payback period, Long Range Forecasting, Capital Budgeting: Net present value (NPV), all previous practices have improved their future emphasis. Also Capital Budgeting: Return on Investment (ROI) improved to high emphasis from medium benefits gained, Capital Budgeting: Internal rate of return (IRR) remained unchanged, Strategic Plans Developed: Separate from budgets improved from low past benefits received to medium future emphasis, and Capital Budgeting: NPV sensitivity analysis remained in the same low category.

For the strategic practices the first four in ranking were: Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets) of high future emphasis and of significant benefits received, Strategic Man. Accounting: Competitor appraisal based on published financial statements, of high future emphasis and of medium benefits received, and Benchmarking carried out: Within the wider organization was of high importance for future emphasis improved from past benefits, Benchmarking carried out: With outside organizations was of high importance in benefits received but dropped to medium importance of future emphasis. The last four in strategic practices were of low importance in past benefits received and were Strategic Man. Accounting: Strategic costing, Strategic Man. Accounting: Life cycle costing, Strategic Man. Accounting: Brand value budgeting and monitoring, Strategic Man. Accounting: Value chain costing all but life cycle costing were improved but still in the low future emphasis.

Table A7, lists the respective MAP that had at least six point difference in rankings

between past benefits received and future emphasis. This is performed in order to dictate those practices where the degree of emphasis is anticipated to change.

The practices which practitioners would emphasize more in the future were: some forms of budgeting systems (planning - cash flows, compensating managers, planning - financial position), performance evaluation (qualitative measures, employee attitudes, non-financial measures, team performance), capital budgeting (payback period), long range forecasting, strategic plans developed: separate from budgets, operations research techniques, decision support systems: activity based management, and some forms of strategic management accounting (competitor appraisal based on published financial statements, strategic pricing, strategic costing, brand value budgeting and monitoring, value chain costing).

As analysed and presented, there is an increasing emphasis on strategic practices and mostly on SMA practices. Practices of decreased interest were some forms of decision support systems (product profitability analysis, cost volume profit analysis - breakeven analysis), detail budgeting systems (planning - day-to-day operations), benchmarking techniques (with outside organizations, operational processes), performance evaluation (controllable profit), and some methods of cost analysis (project costing, job order costing, absorption or full costing).

As far as contemporary and traditional practices, Tables A5 and A6 provide evidence that practices implemented up to date in Greece, for the total, are almost equally divided between contemporary and traditional practices.

It is important to mention that for the future emphasis techniques the ones for increasing interest six were traditional and thirteen contemporary and for the decreasing interest seven were traditional and two contemporary, Table A7. In total there is a marginal moderate preference for more contemporary practices (total 15) over the traditional ones (total 13), perhaps mostly for experimenting purposes because practitioners mostly rely in traditional MA practices but always like to explore new methods. This trend is consistent with researchers who had predicted a decreasing use of traditional techniques (Johnson, 1992; Kaplan, 1994). Similar trend was reported and from Chenhall and Langfield-Smith (1998b) for Australia.

The main reasons for shifting to contemporary practices is mainly due to size since large companies have the "luxury" to invest to modern technologies and experiment new trends. Also increased competition among firms creates a more demanding environment and the need for more "specialized" information. In the last fifteen years Greek companies are expanding rapidly in the Balkans, also foreign companies have created their

subsidiaries in Greece, both these situations have exposed practitioners to more contemporary practices besides the traditional ones. Another reason is that many Greek nationals study in universities in the USA, the UK and other “westernised” countries where educated with the latest trends and theories, most of this knowledge comes back in the country and in many cases is implemented in daily practice.

7.1.2 MAP, Contingent Factors and Firm Performance

This research findings clarify the relationship between management accounting prevalent practices (MAP), which as explained previously is the preferred combination by the practitioners of MA tools, and contingent internal and external factors, supporting the perspective that the integration of some MA tools with some contingent factors is related to higher firm performance. In particular, this research reveals the ideal integrations between MA tools, contingent factors and firm performance. As mentioned previously, firm performance is divided in two parts: first, is the financial performance (market and corporate) and second, is the non-financial performance (operational).

To examine the integration of MAP content, contingent factors, and improved organizational performance managers were asked to answer the survey questionnaire assessing the improvement of their company’s indicators for the last three years. The findings for each performance category and various interactions are summarized further below.

Financial performance

According to practitioners the following combinations provide positive synergies for the financial performance improvement: Detail budgeting systems, Value chain analysis, Cost analysis methods, SMA techniques. Also their interaction on *financial performance* is positive and significant therefore these practices are positively related with market and corporate performance improvement.

According to them the following practices have improved their companies’ *financial performance* indicators (Market performance: Sales, Growth in sales volume, Market share, Growth in market share, and Corporate performance: ROI, Net profit, Profit margin, Asset turnover).

The items of the practices are the following:

Detail budgeting systems for: Compensating managers, Planning - Cash flows, Planning - Financial position.

Value chain analysis: same item, Value chain analysis.

Cost analysis methods: Absorption or Full costing, Process Costing, Job Order

Costing, Standard Costing.

SMA techniques: Life cycle costing, Quality costing, Strategic costing, Strategic pricing, Target costing, Value chain costing, Brand value budgeting and monitoring, Competitor appraisal based on published financial statements.

Also the following contingent factors have a significant impact in *financial performance* improvement.

Other practices (B): Just-in-Time, Total Quality Management (TQM), Materials requirements planning (MRPI), Manufacturing resource planning (MRPII).

Management techniques (D): Integrating information systems with supplier and/or distributors, Downsizing the organization, Reorganizing existing manufacturing/service processes.

These findings are consistent with statements by researchers that MAS meant to be efficient in supporting operational effectiveness (Granlund and Lukka, 1998; Cooper, 1996; Granlund, 1997, Cagwin and Bouman, 2002, Sulaiman *et al.*, 2004), and that MAP have contributed positive effects to the practicing firms (Ghosh and Chan, 1997; Chenhall and Langfield-Smith, 1998; Guilding *et al.*, 1998, Chenlall, 2003; Shilelds, 1998; Hadma and Laats, 2002; O'Connor *et al.*, 2004) . Also according to interviews (chapter 6) especially the Operational research techniques and practices such as JIT, TQM, MRPI & MRPII have very positive contributions on product quality resulting in better sales and increasing market share, final result of these effects is the improvement of corporate performance indicators as well such as ROI, Net profit, Profit margin, Asset turnover.

The MAP: Formal strategic planning, Capital budgeting techniques, Decision support systems, Operations research techniques, Performance evaluation methods, have a positive interaction but their values do not have a direct and significant effect. Thus, these practices are not related with any financial performance improvement. Finally, Long range forecasting, has a negative ineration but it is not statistically significant, therefore this practice is not related with any financial performance improvement.

The contingent factor, Other influences has a negative interaction and it is statistically insignificant. Therefore these practices do not have any impact on financial performance improvement.

Non-Financial performance

According to practitioners the following combinations provide positive synergies for the non-financial performance improvement: Formal strategic planning, Long range

forecasting, Value chain analysis, Operations research techniques, Performance evaluation methods, SMA techniques. Also their interaction on *non-financial performance* is positive and significant therefore these practices are positively related with operational performance improvement.

According to them the following practices have improved their companies' *non-financial performance* indicators (such as: Unit cost, Quality – product, Inventory turnover, Customer satisfaction, Speed of new product introduction, Employee attitude and morale).

The items of the practices are the following:

Formal strategic planning: same item, Formal strategic planning.

Long range forecasting: same item, Long range forecasting.

Value chain analysis: same item, Value chain analysis.

Performance evaluation methods: Performance evaluation is based on: Divisional profit, Residual income (e.g. interested adjusted profit), Return (profit) on investment, Non – financial measures, Team performance, Employee attitudes, Qualitative measures, Balance scorecard (mix of financial and non-financial measures), Customer satisfaction surveys.

SMA techniques: Life cycle costing, Quality costing, Strategic costing, Strategic pricing, Target costing, Value chain costing, Brand value budgeting and monitoring, Competitor appraisal based on published financial statements.

Also the following contingent factor has a significant impact in *non-financial performance* improvement.

Other influences (C): Academics, Professional associations: which promote specific management accounting practices, Protection and Competition, Bonus schemes.

These findings are consistent with statements by researchers that MAS meant to be efficient in supporting operational effectiveness (Granlund and Lukka, 1998; Cooper, 1996; Granlund, 1997, Cagwin and Bouman, 2002). Also there are in accordance with Otley (2008) where regarding performance evaluation he states that is generally inappropriate to judge performance only on financial measures alone. Non-financial measures need to be utilized as well anticipating in prediction of future performance trends.

The contingent factor, Other practices has a positive interaction and it is statistically insignificant. Therefore these practices do not have any impact on non-financial performance improvement.

According to practitioners the following practices provide negative synergies for the non-financial performance improvement: Detail budgeting systems, Cost analysis

methods.

Also the contingent factor Management techniques has negative impact on non-financial improvement. Some possible explanations described by the literature and from practitioners' real experience further below.

Budgeting Systems

Overall, the predominant theme in the literature is that planning and budgeting processes traditionally used in many organizations are failing top to deliver results. Fundamentally, the problem is that they add limited value to the management of the business. They are too time consuming and costly to undertake and they encourage internal politics and gaming behavior rather than driving business performance. Furthermore, one of the biggest problems with budgets is that they tend to promote an inward-looking, short-term culture that focuses on achieving a budget figure, rather than on implementing business strategy and creating shareholder value over the medium to long term. Much of the literature argues that, collectively, these weaknesses lead towards business underperformance (Neely *et al.*, 2003). Otley (2008) states that one of the major problems of budgets is that they focus solely on costs and they are not a useful tool for control, they require an enormous knowledge of the processes being managed and some assessment of the value of the outputs of such products.

Hope and Fraser (2003) in their work *Beyond Budgeting* point out the problems that traditional methods of budgetary control are encountering in contemporary organizations. Their central argument is that traditional budgetary control is proving increasingly unsuitable for the rapidly changing environment of the modern business world. Budgets become rapidly out-dated during the course of a budget year; indeed many organizations state the budget is already out-of-date at the start of the budget period because of the tome taken to put it together. Although there have been attempts to keep budgets up-to-date by more frequent revisions (e.g. rolling budgets) the general experience is that it is difficult to keep the focus on annual financial targets during the revision processes. Budgeting is proving to be a very limited management tool, and is sometimes made more rigid by trying performance bonuses to budget achievement (Otley, 2008).

The overall recommendation is that traditional budgeting should be relegated to the "back office" and that line managers should be measured and controlled using a set of generally non-financial measures, although using flexible rather than fixed targets Hope and Fraser (2003). One main lack in this approach is some way of maintaining the holistic overview that traditional budgeting systems provided.

Management accounting overlooks the non-financial information which is often pertinent (Fry *et al.* 1998), it focalizes the managers on the short-term performance, thus not being able to evaluate the global performance of a plan (Merchant, 1989; Denna, *et al.*, 1993; Hill, 1994; Lorino, 2002).

Costing Methods

Otley (2008) commenting on ABC implementation results he notes that before ABC, oversimplified methods of overhead cost allocation had driven to significant problems in daily practice. For example they were companies that they charged their customers on a cost-plus basis, but the nature of the products supplied was that they were typically low volume and subject to continual changes in specification. Later on, ABC “gave” a clear view of these products by classifying them in the high cost category, although the reimbursement mechanism, based on traditional cost allocation would tend to under-price such products. Also the ABC strive for “more accurate product costs” created some problems with senior managers who were keen at the immediate elimination of unprofitable products identified by the “new” system. Accountants were appointed responsible to explain why product cost did not eliminate immediately with the suppression of some product lines. Additionally there were complains from sales and marketing managers for the elimination of highly selling products.

Various researchers have suggested that the benefits of implementing particular costing methods, such as ABC, are more readily realized under specific environmental conditions. Evidence of ABC implementation failures (Anderson, 1995; Malmi, 1997) has as a result researchers to suggest that reaching the system’s goals depends basically on organizational and technical factors (Anderson and Young, 1999). Malmi (1999) states that implementation failures are related more to exogenous contextual factors than to the process of implementation. Karmarkar *et al.* (1990) argued that complexity, importance of costs and competition require more elaborate costing systems. Chenhall and Langfield-Smith (1998) recognize the potential moderating effects of environmental and organizational variables and call for further research that considers the role of additional relevant firm-specific variables.

Kaplan (1984b) identifies three problem areas in traditional management accounting. The inadequacies of traditional costing systems; the (mis)use of ROI measure; and the dominance of a financial mentality in the enterprises.

In a series of Harvard case studies Cooper *et al.* (1985) present a case study where in a diversified company sometimes is usual that a few products to subsidize the others,

and traditional cost accounting systems continuously mask the damage caused by profit losing divisions, product lines and products.

Johnson and Loewe (1987) in a case study on managing costs they refer to problems with traditional costing systems which they divide in two main categories: First, they fail to control overhead creep because they assign responsibility for indirect costs to persons whose activities consume overhead resources not to people who demand overhead services in order to serve the final consumer. Second, they appoint symptoms, not real cost causes. They lead managers toward cost numbers instead of cost resource-consuming activities that are the major cost causes.

Johnson and Kaplan (1987) in their book *Relevance Lost* advise about costing:

“A good product cost system measures the long-run costs of each product ... virtually all costs are variable ... Assuming that the current size and costs of the overhead departments is defensible ... our task is to identify the cost drivers for these costs ... That many of the most significant product costs are called fixed or sunk signifies the poverty of current cost accounting thinking ... The so-called fixed costs have been the most variable ... The goal of a good product cost system should be to make more obvious, more transparent, how costs currently considered to be fixed or sunk actually do vary with decisions made about product output, product mix, and product diversity”.

Costing theory predicts that due to improvements in resource usage or cost-reduction programs, unused capacity will be created. If practitioners do not eliminate these unused capacities, possibly because significant joint and indivisible costs are present, then the non-valued costs identified by the cost system (such as ABC) may not translate into cost reductions or profit improvement (Kaplan, 1993). Other researchers have presented evidence that costing systems (e.g. ABC) are likely to give erroneous cost estimates when there is a discontinuous relation between the demand for and provision of resources (Maher and Marais, 1998).

Also the following contingent factor has a negative impact in non-financial performance improvement.

Management techniques (D): Integrating information systems with supplier and/or distributors, Downsizing the organization, Reorganizing existing manufacturing/service processes.

Some possible explanations described by the literature further below.

Cappelli (2000) observed that establishments with a higher percentage of managers downsize more than those with a higher percentage of production workers; this is consistent with an attempt to move toward a flatter structure in the organization. Regarding the consequences of downsizing, Cappelli's analysis shows that downsizing reduces labor

cost per employee but it also reduces sales per employee.

Dong and Xu (2005) found that downsizing has serious short-term costs in terms of allocation efficiency and financial performance. For mild downsizing, Chinese state-owned enterprises (SOEs) suffer more in profitability, and private firms more in allocating efficiency. The distribution of surplus after downsizing is more favorable to owners in private firms, and labor in SOEs.

Also some manager's opinions from the interviews were that some negative consequences from *downsizing* could be more defects in final products/services leading to unsatisfied customers and increase of unit cost. Also downsizing always has a negative effect on employees' attitude and morale affecting the general organizational function.

The researcher's personal experience about *integration of information systems with supplier and/or distributors* is that this process most of times creates additional unpredictable expenses due to time consuming technical procedures. As a result organizations may suffer more on unit costs, customer satisfaction and in speed of new product introduction.

Manager's experience from the interviews report similar incidents from *reorganizing existing manufacturing/service process*. Additionally problems are created, at least for the short-term, in inventory turnover, affecting quality of final product and eventually has a negative effect in product unit cost.

This particular section of *Management techniques* needs further investigation and it will be included in section 7.5 (Direction for future research).

Organizational Performance Measurement

According to practitioners involved in this study their performance indicators have been improved in the last three years in relation with the respective industry averages, declaring a further organizational performance improvement. This leads to the conclusion that when companies implement the aforementioned bundles of suggested MAP there is a great probability to enjoy an improvement in their respective performance indicators. These improved performance indicators are: Customer Satisfaction, Sales Volume, Return on Investment, etc, see Table G.1. As presented, there is improvement, first, in financial performance indicators (Sales volume, ROI, Growth in Sales Volume, etc) and second, as well as in non-financial performance indicators (Customer satisfaction, Quality product, Employee attitudes and morale, etc).

Also Table G.3 presents the more benefits - improvement received per sector by practicing the aforementioned practices. First is Manufacturing (8) then is Commerce (6),

and third is Services.

7.1.3 Some issues on contingent factors

To assess integration of MAP content and contingent factors, managers were asked to answer the questionnaire assessing each contingent factor's positive interaction on MAP.

In this part the analysis refers to internal and external contingent, factors which affect or affected by the use of MAP. These are the following: Other Practices, Other Influences, Management Techniques, Basic Factors, Business Philosophy, Time, and Performance Indicators.

The following *Other Practices* have positively affected the use of MAP in the organizations sampled. Business Process Engineering is the first, second is Flexible Manufacturing Systems, and third is Total Quality Management. The last two are: Just in Time and Value Chain Analysis.

The following *Other Influences* have positively affected the use of MAP in the organisations. Technology is the first, second is Education of Students and Employees, and third is Individual Consultants. The last two are: Professional Associations and Inflation.

The following *Management Techniques* have positively affected the use of MAP in the organisations. Integrating information systems across functions is the first, second is Certification to Quality Standards, and third is Implementing new manufacturing / service methods. The last two are: Integrating information systems with supplier and/or distributors and Downsizing the organization.

The following *Basic Factors* have positively affected the use of MAP in the organisations. Organizational Structure is the first, second is Strategy, and third is Information Technology. The last two are: External Environment and National Culture.

The following statements have been part of *Business Philosophy* of the organisations responded. It can be concluded that respondents mostly support the following statements:

a) When companies go through economic troublesome they try to improve financial performance, b) Executives tend to use more financial information than non – financial when they operate in environmental and economic uncertainty, c) When companies enjoy better financial conditions managers consider more about long term success based on non – financial performance indicators. From the above three statements can be concluded that firms focus more to financial figures, performance and conditions. Also, so far, some preference is indicated to traditional MA techniques instead of more recently developed

ones.

The majority of companies *have been using* most of the tools for more than five years, PB Tools 73%, DS Tools 68.2%, CA Tools 78.3%, PE Tools 63%, and SMA Tools 66.9%. Also there is almost the same evidence for *decision making* PB Tools 75.4, DS Tools 63.7%, CA Tools 80.5%, PE Tools 66.8%, and SMA Tools 65.3%. For *quality programme improvement* the numbers are lower but interesting, PB Tools 53.2%, DS Tools 60.0%, CA Tools 59.5%, PE Tools 44.8%, and SMA Tools 43.9%.

7.1.4 Two major contingent variables - Strategy and Technology

During the piloting phase for the interviews the majority of firms contacted declared two important contingent factors which affect their control systems and various management accounting practices. These are strategy and technology.

Strategy

Findings revealed that for manufacturing the most popular strategies are: prospectors-analyzers, for services and commerce: entrepreneurial. Companies falling in these categories mostly implement both traditional and contemporary practices as proposed by the literature (Table 6.1). Also the performance indicators of these organizations are better and much better than the respective industrial averages. The fourth category which does not appear on the Table is the one that the majority of companies do not implement the most of MAP, but report good performance results. These companies are family owned, declare almost complete ignorance of the strategies proposed, work on intuition, have only the instruments imposed by the law (financial accounting and cost accounting for tax purposes), are relatively new (less than ten years from establishment or conversion to large size with successful results), but are willing due to increasing needs (competition, size, etc.) in the near future to adopt more sophisticated and professional tools.

Technology

Technology was divided in two parts: generic and contemporary.

Technology – Generic: The results are presented in the Table 6.2 revealed that: the majority of the companies interviewed, from all three sectors, belongs to first category which is Standardized – Automated processes and again their practices are in accordance to literature (Khandwalla, 1977; Merchant, 1984; Merchant, 1985; Dunk,1992), more specifically they implement: More standardized technologies, more traditional formal MCS, highly developed process controls, high budget use, high budgetary control, less

budgetary slack. As far as the family owned organizations again they declare almost complete absence from any of the technologies proposed, but are willing to consider soon.

Technology – Contemporary: Many times is referred to advanced practices such as Just in Time (JIT), Total Quality Management (TQM), Flexible Manufacturing (FM), and Flexible Manufacturing Systems (FMS) such as Computer Assisted Design or Manufacturing (CAD/CAM). These practices are usually associated with broadly based MCS, informal and integrative mechanisms are closely related to strategy and non-financial performance measurement. In the meantime these practices are perfectly co-existing and many times act as supplements to financial performance systems (Chenhall, 1997; Chenhall, 2003). From the companies interviewed some declared that implement, or phasing in, some of these practices, more specifically: manufacturing (TQM: 3 firms, FMS-CAD: 3, FMS-CAM: 2), commerce (JIT: 2, TQM: 3), services: TQM: 3 firms. At the same time all these companies agree that these practices have a positive contribution on their financial results which are above the average in the respective industries.

7.1.5 Some important issues

Some additional important issues which derived from the interviews were:

Organizations in Greece change their control systems to incorporate some of the most popular techniques aiming at: first, better decision making, second, improved performance judging and third, better problem solving through qualitative departmental information. Some other reasons were: changes in administrative and accounting practices, previous performance systems were not sufficient and occasionally produced misleading information, specialized personnel (management accountants, controllers, etc), turnover, current and more synchronized performance measurement systems, globalisation of Greek economy.

The main aims of control systems, in importance sequence, of the majority of firms are: quality promotion, sales promotion, cost control.

When asking practitioners to comment about their previous negative experiences in administrative – management accounting practices most of them referred to: inaccurate cost information especially in overhead allocation distortions, low priorities from top management in implementing management accounting tools, traditional costing and spreadsheets were the bases for any decision made, trivial in-house support, also the decision making process was mostly based on intuition and not on hard facts (both historical and predictive). The most popular problem with current control systems is that they cannot take full advantage of the information systems as yet still need some fine-

tuning, some reasons are: accountants in many cases do not have the additional computer skills, additional custom-made software is needed where companies in some cases are unwilling to contribute characterizing it as a “luxury”, changes in the information systems are so quick and rapid so companies in many cases cannot follow, besides the computer skills additional knowledge is needed in order to develop and exploit the respective systems.

Strategic planning has become the guide for all major actions taken and there is a rigorous evaluation process (feasibility studies) for most new ideas - projects. Also controlling the firm’s performance through analytic (departmental) budgeting and key performance indicators (KPIs) is becoming more structured and well established. As discussed before, decision making has become more rapid and robust through those changes.

For the Greek firms management accounting used to be more fiscal oriented. This attitude has changed in the last ten years where the fiscal role is left to financial accountants and tax experts. For the average Greek firm management accounting is a vital part of a modern organization and the role of management accountant has been upgraded dramatically and mostly is seen as a business partner who contributes valuable expertise in crucial business decisions. These findings are in contrast with Otley (2008) who argues “So there has been much apparent change in management accounting techniques over the last two decades, although it should also be noted that the role of “management accountant” seems to have significantly declined, at least if one observes the use of the title in practice. What needs to be assessed is what these new techniques have added to the management accountants” repertoire, and to what extent they are truly “new” rather than representing old wine in new bottles” (Otley, 2008, p.230).

The interviews performed in the companies revealed that MA in Greece has a high profile even by international standards. Modern cost methods are already implemented and some others are under consideration. Planning methods are used extensively for the short and long term. Undoubtedly, there are differences in the application of most traditional and modern MAP and other management methods (such as TQM, JIT, etc) versus the European or other multinational companies overseas, but these are mostly due to culture and managerial philosophy of Greek managers.

Management accounting information is the primary source for production and general planning, for pricing formulation, and for performance evaluation. Comparing with previous studies, MA practice in Greek firms has been upgraded remarkably in the last ten years. Most management accountants are educated to a master’s degree level and usually

hold an additional professional certificate (CIMA or similar or local variation). All these improvements and innovations have added positive effects to the firms and definitely reflect positively to their financial and non-financial performance.

In addition, managers believe that the most usual contextual factors (internal-external) that affect their organizations interest in adopting new practices or remove non-useful ones are: fierce market competition, management philosophy, and external consultants. The majority of practitioners agree that the most popular tools arise from the actual daily work. If management and employees find some practice useful then this tool is being adopted and it evolves according to the company's needs and requirements. Also strategic planning, feasibility studies, budgeting, introduction of KPIs and the establishment of structured processes, methodologies and tools to support them, have delivered great benefits to organizations having a positive effect on their financial and non-financial performance.

7.2 SUMMARY OF THE RESEARCH FINDINGS

The results support some of the predicted relationships between management accounting practices (MAP), organizational characteristics and internal - external contingent factors.

The findings of this research are consistent with statements by researchers that MAS are competent in supporting firms' operational effectiveness (Cooper, 1996; Porter, 1996; Granlund, 1997; Granlund and Lukka, 1998; Cagwin and Bouwman, 2002). A primary purpose of initiatives was to improve this effectiveness and there is now evidence that a selection of MAP is contributing in this direction. This research identified the overall synergistic effects from concurrent existence of MAP and contingent internal and external factors. Also it was addressed which specific initiatives provide the effect or whether there may be a causal ordering of initiatives that they might be important. MAP contribute positive benefits, but not in all firm-specific circumstances and not all practices. It is important practitioners to be aware of the appropriate internal and external firm conditions for maximizing the efficacy of MAP.

With regard to organizational performance a series of MAP and some internal and external contingent factors have a positive contribution on financial performance (market and corporate performance) and non-financial performance (operational performance). More specifically for the financial performance: Detail budgeting systems, Value chain analysis, Cost analysis methods, SMA techniques, Other practices, Management techniques, have a positive effect on financial performance improvement. For the non-

financial performance: Formal strategic planning, Long range forecasting, Value chain analysis, Operations research techniques, Performance evaluation methods, SMA techniques, have a positive effect on non-financial performance improvement.

In addition no significant support and therefore no effect on the financial performance was found for the following. For the financial performance: Formal strategic planning, Capital budgeting techniques, Decision support systems, Operations research techniques, Performance evaluation methods, for the non-financial performance: Capital budgeting techniques, Decision support systems.

Finally significant negative relation was found for the non-financial performance improvement for two MAP: Detail budgeting systems and Cost analysis methods, and one contingent factor: Management techniques.

While the proposed hypotheses were not fully supported, these findings have credible explanations that preserve the logic of the model.

The control variables: size, time and type did not contribute any significant effects or changes to the model therefore analysis did not continue further. One possible reason for this situation is because companies selected were large organizations from all three types of industries and the majority of them have been practicing most of the methods for five years and more.

As far as contemporary and traditional MAP, most of the practices surveyed were in implementation. There is an almost equal distribution between recently developed and traditional practices, with a marginal difference toward the traditional ones. This trend is similar to Chenhall and Lanfield-Smith (1998b). However, in total there is a marginal preference for future emphasis in more contemporary practices over the traditional ones. One good reason is that perhaps Greek managers started to become more innovative than they used to be in the past. Another reason is that practitioners want to rely in traditional systems and try to experiment with the lately developed ones. This trend is consistent with researchers who had predicted a decreasing use of traditional techniques (Johnson, 1992; Kaplan, 1994). Similar trend was reported and from Chenhall and Langfield-Smith (1998b) for Australia. Also, Sulaiman *et al.* (2004) from a survey in four Asian countries (Singapore, Malaysia, China and India) regarding the use of MAP report opposite results, where practitioners emphasized more in traditional techniques. Overall, the evidence reviewed suggests that the use of contemporary management accounting tools is lacking in the four countries. The use of traditional management accounting techniques remains strong. Some possible reasons for this trend are: lack of awareness of new techniques, lack of expertise, high implementation transitional costs from traditional to contemporary and

more importantly, the lack of top management support, managers adopt a more risk averse and less innovative attitude.

Further to aforementioned practices and contingent factors interviews revealed two important factors that managers underlined as important in affecting companies' performance. These are strategy and technology.

Strategy: for manufacturing the most popular strategies are: prospectors-analyzers, for services and commerce: entrepreneurial. Companies falling in these categories mostly implement both traditional and contemporary practices as proposed by the literature. Also the performance indicators of these organizations are better and much better than the respective industrial averages.

Technology: the majority of the companies interviewed, from all three sectors, belong to Standardized – Automated processes category and their practices are: More standardized technologies, more traditional formal MCS, highly developed process controls, high budget use, and high budgetary control, less budgetary slack. Also from the companies interviewed some declared that implement, or phasing in, some of these practices, more specifically: manufacturing (TQM: 3 firms, FMS-CAD: 3, FMS-CAM: 2), commerce: JIT: 2, TQM: 3, services: TQM: 3. At the same time all these companies agree that these practices have a positive contribution on their positive results which are above the average in the respective industries.

In most of the companies it was clear what guides MA development in the Greek firms surveyed. The main reasons were: Education of employees (degrees, post graduate studies, seminars, professional courses, etc), practice transfer from parent companies, innovations in MIS technology, management consultants. This is in contrast with Ballas and Venieris (1996) when referring to MA development they had commented "No clear picture emerged as to what guides management accounting development in the Greek firms surveyed" (ibid. p.131). Many executives noted that MA is only one but basic part of a complicated bundle of informational and organizational structures. In many cases management accountants were in direct communication with the CEOs (chief executive officers) producing special reports, had a serious involvement in decision making and were encountered as a very valuable asset of their company.

Cost information is implemented by the Greek organizations mainly as a basic element in pricing and therefore in marketing strategy, more specifically the price of the product is one basic factor in the company's marketing plan. The determination of selling price for the company's products in combination with the appropriate quantity sent in the market make evident a tight relation between the management accountant and the

marketing people of the company.

All companies, of this research sample (interviews), followed the practices of Hellenic General Accounting Plan (HGAP) – it is mandatory by law for the SAs (Societe Anonyms), a category in Greece where all large and medium-sized companies belong and the ones included in this survey sample too. Therefore most of the companies of this sample implemented absorption costing (or full costing) some of them just for tax law obligations only. Some others use a second or even third method of costing for internal purposes such as standard costing and job order costing (in manufacturing). Most of these firms support the idea that the auxiliary costing methods mostly used for controlling purposes and contribute positively to the companies' positive results. This findings support Blake *et al.* (2003) comments on Bhimani (1996) where he reports "In Sweden, France, Germany and Greece there seems to be a strong majority following full costing), Blake *et al.* (2003, p.184).

Activity Based Costing (ABC) was quite popular in this sample, many of the companies used ABC as a primary or secondary costing method. ABC appeared to be favourite among the executives of our sample and executives claimed that produced more accurate cost information for product costing. This is in accordance with Cohen (2005) where she notes "...Greek companies show a growing interest towards ABC in recent years". Most managers, even those did not implemented ABC, were aware of ABC and its context.

As far as planning, the main question asked to managers was how the budget was implemented and for what purpose, and the most popular replies, in preference order, were: first as a guide for planning, second as a control instrument, and third, as a motivation tool. In all companies there were budget committees usually constituted from all division heads of the firm and after several revisions were made in order plans to be compatible with reality, budgets submitted to top management (usually the CEO and the president) for approval. Most participants were encouraged to be careful with turnover and expenditure figures so to have small variances afterwards. Most of the sampled companies, prepared long term plans (up to 5 years) and covered most activities of the firm. Most companies reported the awareness and use of traditional appraisal methods for capital investment for their long term planning such as NPV, IRR, payback, and ARR and their usefulness in investments or expansion plans. The same managers expressed their sound interest to remain updated through seminars in these vital issues.

Most respondents agreed that the capital investment decision making is not an easy procedure. All of the times require a very careful procedure where engineers and

accountants usually meet to decide further actions. More specifically, when a project has been found, examined and defined is when the accountant's functional role becomes important. It is the significant evaluation level that the accountant draws together the cash flow analysis relating to the costs and benefits of the project and seeks to determine its financial approval. The additional sales revenue produced usually will affect the confirmations of both sales director and management accountant.

As far as performance issues, standard costing is a very popular costing method in Greece. When executives in our sample were asked whether their companies computed standard costs (labor, materials, overheads), half of the firms replied positively. Executives summarized the usefulness of standard costing in three areas. First, it provides the administration with a guide for performance evaluation, second, notes any deviations between business operations and plan, and third, generates information for future standards. Most of companies did their performance measurements by comparing the actual figures occurred from the budgeted ones and then had a variance analysis. The majority of companies issued monthly reports and compared results every month. A few companies did the same process on a quarter basis.

It was generally agreed by almost all respondents that MAP contribute positively in companies' performance but not all categories. Some categories even recognized as very useful, especially the ones in strategic management accounting, however they have been characterized as a luxury. Practitioners should be fully aware of the firm's specific internal and external contingent factors before they adopt and implement any practice or technique.

The following sections provide further understanding of the implications of this research for management scholars and strategic executives.

7.3 ADDITIONAL IMPLICATIONS AND CONTRIBUTIONS

This section discusses additional implications and contributions of this research. First, conceptual and theoretical contributions are presented. Then, the methodological implications and contributions are discussed. This section concludes with an overview of contributions to management practice.

7.3.1 Conceptual and Theoretical Contributions

This research provides insights which advance concepts and theory for several streams of research literature, including contingency theory and management accounting research. Several conceptual and theoretical contributions are presented below.

The MAP concept

Few would deny the intuitive appeal of MAP concept. A major contribution of this dissertation, however, provides much-needed clarification of this concept. The contingency theory sets the theoretical background which highlights the uniqueness in practice of management accounting practices in the firms.

Otley (1984) studied the connection between management accounting and organization theory. He divided organization theory in four parts: contingency theory, systems theory, organizational and behavioral theory. His survey revealed that the work of management accounting research had as a main purpose: to explain the management accounting practices. One major conclusion was that researchers gave more emphasis to theory rather to empirical results. Also the emphasis of management accounting research based on organizational theory was the same as to one of economic based management accounting research, which both attempt to explain management accounting practice. His suggestion was for more qualitative, interpretive research and case studies, and focus on empirical results. Intner and Larker (2001), quote "Contingency theories expanded the managerial planning and control framework by articulating some of the contextual or "contingent" factors influencing the entire organizational control "package" of accounting and non-accounting information systems, organizational design, and other control mechanisms", (Ibid, 2001, p.352).

Management accounting under the prism of contingency framework takes the basic assumption that there is no common accounting system replicated evenly to all organizations in all cases (Emmanuel *et al.*, 1990). Specific modes of an accounting system depend on the relevant circumstances where the organization belongs. Gordon and Miller (1976), Hayes (1977), Waterhouse and Tiessen (1978), and Otley (1980), among others conclude that there is no universally applicable system of management accounting and control. The selection of the appropriate systems relies upon the respective business environments where firms belong.

This research further contributes to understanding the MAP concept uniqueness and interactions in relation to other contingent factors within the contingency based literature by integrating perspectives from the interpretive view of the firm. Weick and his colleagues (Weick, 1979; Daft and Weick, 1984) developed the interpretive theory of the firm, which views firms as social systems that must process and interpret uncertain and ambiguous information for action. According to the interpretive theory, manager's choices are critical to the scanning process (when information is collected), the interpretation

process (when information is given meaning), and the strategic action process (which affects firm performance). In this kind of framework the basic idea is that social practices such as management accounting are not natural phenomena but are socially made and could vary pending on social actors. Automatically, researchers can not generalize and should search for the rules which structure social behavior. This means that social structures are simultaneously a condition and a consequence of social behavior. In order to fit accounting into this framework researchers must analyze current practices and place them in their organizational, social, economic and historical environments. It is these social, cross-national and cultural aspects that make the study of control systems such a fascinating topic for academic research and such a challenge to the practitioner", (Otley, 1999, p.381).

In order to capture data about the status of MA, a significant body of research has been developed specifically to examine the customisation issue of regions and countries (Amat and Roberts, 1994; Yohikawa, 1994; Bescos and Mendoza, 1995; Drury *et al.*, 1995; Ask and Jonsson, 1996; Wijewardena and De Zoysa, 1999). The regional surveys of Bhimani (1996) for Europe and Lizcano (1996) for Latin America give information related to Management Accounting Practices (MAP) and their varieties.

Several studies have explored the positive effects derived from traditional and contemporary MAP in Asia, Europe and the rest of the world (Ghosh and Chan, 1997; Chenhall and Langfield-Smith, 1998; Guilding *et al.*, 1998; Shields, 1998; Haldma and Laats, 2002; Lin and Yu, 2002; Szychta, 2002; O'Connor *et al.*, 2004). Also researchers presented evidence that management accounting systems are meant to be efficient in supporting organizations' operational effectiveness (Cooper, 1996; Granlud, 1997; Granlud and Lukka, 1998).

This research as an extension of the above, further contributes to update practitioners' and academics' knowledge regarding latest MAP implementation in Greece concerning the traditional and recently developed practices, and the relative benefits for the practicing firms. It also reports on the current use and importance of a range of management accounting practices and management procedures referred to in textbooks and the broader literature. Another contribution of this work is the creation, for first time in Greece, of a list of all traditional and recently developed MA tools, the level of implementation of each one and the relative benefits gained. Also executives through extensive telephone interviews described many details for MA implementation and internal-external contingent factors and how all these affect organizational effectiveness and finally performance.

Also, it explores the dimensions of MAP content and MAP structure and presents organizational measures for assessing each of these dimensions. More specifically presents an application of a MAP model to empirical data and thereby a location of the level of sophistication of current Greek practice. In this context sophistication refers to the capability of a management accounting system to provide a broad spectrum of information relevant for planning, controlling and decision-making all in the aim of creating or enhancing value for the modern firm.

This dissertation facilitated valuable descriptions of MAP demonstrating that managers can articulate structures of MAP that are meaningful to other managers and to researchers. This was accomplished by relying on a combination of qualitative and quantitative methods involving highly seasoned executives. First, a fully integrated questionnaire according to latest relative literature was sent with priority to top financial executives attempting to discover all MAP dimensions, internal and external contingent factors' integrations, and how these combinations affected the practicing organizations (see Appendix 2). Second, semi-structured telephone interviews were conducted with the top financial executives of forty organizations (out of the same sample of respondents). Each one was asked to share his beliefs regarding his organizations experiences based on a few pages questions, check points and descriptions which he received prior to the interview (see Appendix 4). Consistently, executives began the interviews sharing their concern about expressing what their organizations' MAPs were and how they were affected by internal and external contingent factors. The interviews revealed positive synergies obtained from practicing simultaneously practices such as Just in Time (JIT), Total Quality Management (TQM), and Flexible Manufacturing Systems (FMS) such as Computer Assisted Design or Manufacturing (CAD/CAM). These findings are similar with those researchers who presented evidence that management accounting practices support operational effectiveness (Cagwin and Bouwman, 2002). Statistical analysis regarding measures on content and structure reveal another contribution: first, MAP is related to firm performance and second, is totally dependent to firm's internal and external contingent factors. These contributions are discussed in the next sections.

MAP – Performance – Internal / External Factors

Another contribution of this research was the development and testing of a theoretically-grounded model relating top financial executives' perceptions of MAP to firm financial and non-financial performance. This study proposes the construction of a model explaining the conditions under which MAP is associated with improvement of financial and

non-financial performance. The model is assembled from the findings and arguments of previous research and refined for the Greek reality and mentality, with constructs validated with regression analysis. Prior to this research there has been no similar empirical analysis of the firm-specific contingent factors where MAP affect positively to organizational performance. This research contributed insight to several streams of literature by providing empirical evidence supporting the normative value of MAP. Confirmation of some prepositions relating MAP and financial and non-financial performance support the existing MA theory that management accounting systems are meant to be efficient in supporting organizations' operational effectiveness (Cooper, 1996; Granlund, 1997; Granlund and Lukka, 1998; Otley, 2008).

These positive findings are of main interest to practitioners as well as academics because they are usually the participants and administrators of MAP, MACS and MCS. This study proposes a MCS framework where under certain circumstances, positive performance results are produced. Also presents the most beneficial MAP implemented in the Greek context. MAP contribute positive benefits, but not in all firms. It is crucial that practitioners to discover the appropriate combinations and conditions appropriate to their organizations for maximizing the efficacy of MAP and rest of practices.

7.3.2 Methodological Contributions

This research suggests several methodological contributions to management accounting research. These contributions include: first, the use of multiple informants, second, the use of multiple measures to assess MAP and organizational performance, third, a methodology for collecting contingency data.

The first methodological contribution of this research is the use of multiple informants at senior managerial levels to assess executives' perceptions regarding MAP in organizations. Most of studies in MAP, MAS and MCS involve samples of single position respondents such as financial executives or CEOs or auditors (Chenhall and Langfield-Smith, 1998; Guilding *et al.*, 1998; Shields, 1998; Haldma and Laats, 2002; Lin and Yu, 2002; Szychta, 2002; Cohen *et al.*, 2005). Inclusion of various positions at senior levels (financial managers, financial controllers, senior management accountants) revealed several interesting findings that a study based on more limited samples would miss. For example there is different involvement in daily practice and problem facing for the different positions. Also, people placing these positions usually are in the centre of management information and well informed about all management practices and issues.

A second contribution is the use of multi group constructs to assess MAP, contingent

variables and organizational performance. This revealed interesting and a plethora of findings regarding managers' experiences and firm performance measurement. These insights would not have emerged if a single group of measures had been employed, especially for MAP and firm performance.

A third contribution is the methodology used to assess MAP and contingent factor interaction on firm performance. This study combined qualitative and quantitative methodologies to measure and explore the impact of the aforementioned interactions on firm performance. Trochim (2000) notes while researchers usually write a proposal on economics or psychology issues usually miss the direct experience with the phenomenon. It is advised the researcher to spend some time living with the phenomenon. The author has spent about fifteen years of diverse management accounting and management experience in multinational business environments therefore was in the position to formulate the appropriate hypotheses and the respective quantitative (questionnaire) and qualitative (interviews) methods as the bases for direct experience and hypotheses testing.

Also, emphasis was given to multiple measures and observations each of which may had different types of error and triangulation across these errorfull sources was attempted in order to achieve results which are closer to reality. Attempting to approach triangulation this study used three types of sources: a questionnaire survey to use it as a base, telephone interviews to "read between the lines of the questionnaire", and archival data to perform any additional cross checks for better reliability.

7.3.3 Contributions to Management Practice

Evidence suggests that agreement on MAP content is associated with higher performance. If organizations are determined about practicing MA, the results of this research suggest that managers may wish to maintain an ongoing dialogue regarding their organizations MAP and interactions from internal and external contingent factors. The qualitative portion of this research provides a framework which helped managers express MAP conditions contents in practical ways. Managers were able to articulate and consider MAP conditions using language that was meaningful to them. Survey results indicate that these practices, in turn, were meaningful to other managers in the industry.

This research indicates that managers can maintain a dialogue which facilitates articulation of valuable practices. An ongoing conversation regarding practice contents, facilitated by internal managers or outside consultants and academics may allow practitioners to monitor practices in a timely fashion.

MAP structure was also presented in this research. Results regarding this

dimension also suggest managerial implications. This dissertation indicates that key practices in more successful firms may be structurally different from practices in less successful ones. Successful firms tend to use more traditional MAP combined with modern management practices such as TQM, JIT, etc, and rely on modern strategic and technologic choices and methods which usually affected by organizational and national culture. Managers who recognize this may be more successful in creating competitive advantage of their firm. These managers may initiate periodic examinations of the structure of key practices. This process may provide early warnings when organizations are working towards practices that are less likely to contribute competitive advantage. For example, if managers believe that a particular content is very important to organizational performance, and the structure of this practice is also seen unsuitable in organizational and national culture the results of this research indicate that decision makers should be concerned. Managers who recognize this may identify important trends or changes early; those who do not, may find themselves investing after wrong practices and producing negative effects for their organizations.

Although this research provides a range of interesting findings with noteworthy implications, several limitations must be addressed. The following section provides a discussion of some theoretical and empirical limitations.

7.4 LIMITATIONS OF THIS RESEARCH

There are several limitations in this study. First, the study divided companies in three general categories, manufacturing, commerce and services. More segments could be used for example, categories such as banks, hospitals, mines, etc. Also why practitioners in each sector prefer specific practices? Is it a matter of choice or a necessity? On the other hand, applying the study in three general categories of business it attempts to reach generalization and sub categories are sacrificed. Similar findings across sectors may increase confidence in the generalization of the results. Limiting the number of industries allows the in-depth insights and within-sample comparisons needed to explore the research questions.

A second limitation is the number of companies interviewed by telephone. The interview questions which addressed by this study do not expose large-scale data bases. Mainly top financial managers and participation from executives from senior ranks were necessary. To facilitate the above participation, the number of organizations had to be limited. About forty managers participated in the interview process that provided a broad

understanding of practices and their company situations. However, the responses had to be aggregated to examine effects on company performance. A larger sample size would provide more explanatory power and greater confidence in the findings.

Third, in the questionnaire survey, there is a large array of items and as with all surveys there is a possibility participants to have misinterpreted some items. Attempting to minimize this possibility it was ensured that participants had a firm knowledge of the organizations' MA and management practices. Also an additional questionnaire terminology was attached at the end of questionnaire.

Fourth, as the interview sample selected was not random the results should be explained as connecting to large organizations not to the general number of companies.

Fifth, the research does not suggest specific ordering of implementation which could provide maximum benefit (e.g. TQM before MAP).

Finally, for the interview, in balancing a researcher's desire for rich insight and statistical power, this work focuses on the former. While the statistical analysis is somewhat limited due to sample size and the number of attributes measured, a combination of quantitative data with qualitative later on (interviews) allows for rich insights and statistical analysis. Longitudinal analysis would be necessary to attribute causality. Due to the cross-sectional design of this study, this research measures the significance of associations. Although confirmation of causality is desirable, recognition of association (or lack thereof) still offers new and important insight.

The final section presents additional suggestions for future research based on the conclusions of this dissertation.

7.5 DIRECTIONS FOR FUTURE RESEARCH

This dissertation suggests several extensions for future research. One direction involves extending the sample. Both the number of firms could be increased and industries could be sub-divided.

Even it is difficult to have both large sample sizes and the volume of information necessary for making correct construct measurements this could be a significant issue to consider. First, tests involving additional organizations in all categories would increase the sample size and, therefore, allow for more powerful statistical analysis. Second, segmentation of industries will provide further insights into the roles that industry plays in the relationships outlined by the model. In particular, expansion of the study to industries which face more or less hostile and competitive environments may increase understanding of the effect of strategy and technology choices on the model. Also, companies in less

hostile environments may implement different practices from those in more aggressive ones.

Next, replicating the quantitative and qualitative parts of this study with the same sample could also provide insight into the dynamic elements of practices. For example, repeating the study in manufacturing, commerce and services may lead to identification of core and peripheral practices and contingent factors as well. It will be a good opportunity to test whether practices change over time. Do practices experience a life cycle of value?

Also investigation is possible to explain external and internal firm conditions before and after the implementation of MAP.

Further investigation is needed in the nature of the dependence between traditional and currently developed MA tools and other management practices. The lower benefits relating the currently developed techniques focus on the conditions necessary to effectively implement these practices.

In similar qualitative study, interviews could include firms with good and /or poor performance results which do not use the practices and investigate the reasons which allow or bind the implementation of practices.

Lately, Greece is considered as a developed country. This model is proposed for research in more developed and larger economies just to measure deeper interactions among the variables proposed. Alternatively could be applied to emerging economies as well to investigate trends in MAP and rest of practices as well as other important contingent variables (besides strategy and technology) such as culture, external environment, business unit and industry characteristics, knowledge and observability factors (Fisher, 1995).

Finally, a better understanding is necessary of the factors that influence differences in the levels of adoption of recently developed practices between industries.

In sum, this research supports beliefs that an integrated set of management accounting practices affected by internal and external contingent factors and company characteristics could affect positively the organization's performance, financial and non-financial. While this research has provided insights to our understanding of practices there is still much to learn. The possibility for more contributions permits expanding and replication of this study for future development of this important and vast research area.

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APPENDICES

Appendix 1 – Definition Of Questionnaire Variables

Abbreviation	Name	Definition
PB Tools	Planning & Budgeting Tools	Analytical list of tools, group questions A1, adapted from Chenhall and Langfield-Smith, (1998), Ernst and Young and IMA, (2003), Baines and Langfield-Smith, (2003).
DS Tools	Decision Support Tools	Analytical list of tools, group questions A2, adapted from Chenhall and Langfield-Smith, (1998), Ernst and Young and IMA, (2003), Baines and Langfield-Smith, (2003).
CA Tools	Cost Analysis Tools	Analytical list of tools, group questions A3, adapted from Chenhall and Langfield-Smith, (1998), Ernst and Young and IMA, (2003), Baines and Langfield-Smith, (2003).
PE Tools	Performance Evaluation Tools	Analytical list of tools, group questions A4, adapted from Chenhall and Langfield-Smith, (1998), Ernst and Young and IMA, (2003), Baines and Langfield-Smith, (2003).
SMA Tools	Strategic Management Accounting Tools	Analytical list of tools, group questions A5, adapted from Guilding <i>et al.</i> (2000)
OTH.PRA	Other Practices	Operationalized through the eight items in section B of the survey instrument. The items developed based on Kotha and Swamidass (2000), and Rimmer <i>et al.</i> , (1996).
OTH.INF	Other Influences	Operationalized through the nine items in section C of the survey instrument. The items developed based on Bhimani (1996) and Lizcano (1996), Blake <i>et al.</i> (2003).
MAN.TEC	Management Techniques	Operationalized through the fourteen items in section D of the survey instrument. The items developed based on Chenhall and Langfield-Smith (1998c).
BAS.FRS	Basic Factors	Operationalized through the five items in section E of the survey instrument. The items developed based on Hofstede (1984), Miller <i>et al.</i> (1992), Parthasarthy and Sethi (1993), Reeve (1996), Krumwiede (1996;1998), Perrera <i>et al.</i> (1997), Chenhall and Langfield-Smith (1998a; 1998c), Hofstede and Bond (1998).

Abbreviation	Name	Definition
BUS.PHI	Business Philosophy	Operationalized through the ten items in section F6 of the survey instrument. The items developed based on. Hussain (2002; 2003), Miles and Snow (1978), Gordon and Narayana (1984), Mia and Ghenhall (1994), Morissette (1998), Chenhall and Langfield-Smith (1998a).
MAR.PER	Market Performance	Industry median adjusted, measured by self-reported five point Likert responses provided by appropriate company staff. Questionnaire items G2, 1-4. (Spanos and Lioukas, 2003).
COR.PER	Corporate Performance	Industry median adjusted, measured by self-reported five point Likert responses provided by appropriate company staff. Questionnaire items G2, 5-8. (Friedlob <i>et al.</i> 2002).
OPE.PER	Operational Performance	Industry median adjusted, measured by self-reported five point Likert responses provided by appropriate company staff. Questionnaire items G2, 9-14. (Israelsen, 1996 ; Bruggeman, 1996; Groot, 1996).
TIM	Time since implementation of MAP tools	Operationalized through the items G1, General Questions. Adopted from Cagwin and Bouwman, (2002).
SIZ	Size	Operationalized through the items G4 and G5 in General Questions section of the survey instrument. Adopted from Krumwiede (1996).
TYP	Type of business	Operationalized through the items Reid and Smith (2000)Business type, General Questions, G 3 and G6.
MAP	Management Accounting Practice	The extent and depth use of MAP. Composite of the variables PB Tools, DS Tools, CA Tools, PE Tools, SMA Tools.
Δ FP	Change in Financial Performance	Composite of the variables MAR. PER and COR.PER.
Δ NON-FP	Change in Non-Financial Performance	Composite of the variables OPE.PER.

More analysis on the synthesis and use of variables in sections 3.1.2 and 3.3.

Appendix 2 - Questionnaire

The following questions relate to your business organization management accounting practices. I recognize that some of the information in this survey may be sensitive, but I assure you that the data will only be used in the aggregate to statistically compare various types of organizations that have participated in the study.

Your responses will be kept confidential. Please answer the questions based on your business organization. A business organization is considered at **company level**. When you have completed the questionnaire, please put it in the enclosed postage-paid envelope, and return it to me within maximum ten days.

Answer the questions below at company level (not Group, Plant, Division, etc).

Please indicate (circle) the extent to which you agree with the following statements.

At the end of questionnaire there is an additional **terminology** section only for questions A and B, in case you have further questions for any issue please do not hesitate to call at any time on my mobile phone at 6974 700018.

YOU DO NOT HAVE TO CIRCLE ALL ANSWERS.

<i>A. Practicing the following techniques over the last 3 years your organization gained some significant benefits</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>If Not used in the last 3 years please tick ✓</i>	<i>Will you be using this technique for the next 3 years? YES/NO</i>
1. Planning and Budgeting Tools (PB Tools)							
1.1 Formal strategic planning	1	2	3	4	5		
1.2 Capital budgeting techniques:							
1.2.1 Return on Investment (ROI)	1	2	3	4	5		
1.2.2 Payback period	1	2	3	4	5		
1.2.3 Net present value (NPV)	1	2	3	4	5		
1.2.4 Internal rate of return (IRR)	1	2	3	4	5		
1.2.5 NPV sensitivity analysis	1	2	3	4	5		
1.3 Strategic plans developed:							
1.3.1 Together with budgets	1	2	3	4	5		
1.3.2 Separate from budgets	1	2	3	4	5		
1.4. Long Range Forecasting	1	2	3	4	5		
1.5 Detail budgeting systems for:							
1.5.1 Controlling costs	1	2	3	4	5		
1.5.2 Compensating managers	1	2	3	4	5		
1.5.3 Linking financial position, resources and activities (e.g. activity based budgets)	1	2	3	4	5		

<i>A. Practicing the following techniques over the last 3 years your organization gained some significant benefits</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>If Not used in the last 3 years please tick ✓</i>	<i>Will you be using this technique for the next 3 years? YES/NO</i>
1.5.4 Planning - Day-to-day operations	1	2	3	4	5		
1.5.5 Planning - Cash flows	1	2	3	4	5		
1.5.6 Planning - Financial position	1	2	3	4	5		
1.5.7 Planning - Operational Budgeting	1	2	3	4	5		
2. Decision Support Tools (DS Tools)							
2.1 Decision support systems:							
2.1.1 Cost volume profit analysis (e.g. breakeven analysis)	1	2	3	4	5		
2.1.2 Product life cycle	1	2	3	4	5		
2.1.3 Activity based management	1	2	3	4	5		
2.1.4 Product profitability analysis	1	2	3	4	5		
2.2 Benchmarking of:							
2.2.1 Product characteristics	1	2	3	4	5		
2.2.2 Operational processes	1	2	3	4	5		
2.2.3 Management processes	1	2	3	4	5		
2.2.4 Strategic priorities	1	2	3	4	5		
2.3 Benchmarking carried out:							
2.3.1 Within the wider organization	1	2	3	4	5		
2.3.2 With outside organizations	1	2	3	4	5		
2.4 Value chain analysis	1	2	3	4	5		
2.5 Operations research techniques	1	2	3	4	5		
3. Cost Analysis Tools (CA Tools)							
3.1 Absorption or Full costing	1	2	3	4	5		
3.2 Activity - based costing	1	2	3	4	5		
3.3 Process Costing	1	2	3	4	5		
3.4 Job Order Costing	1	2	3	4	5		

<i>A. Practicing the following techniques over the last 3 years your organization gained some significant benefits</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>If Not used in the last 3 years please tick ✓</i>	<i>Will you be using this technique for the next 3 years? YES/NO</i>
3.5 Standard Costing	1	2	3	4	5		
3.6 Marginal / Direct Costing	1	2	3	4	5		
3.7 Project Costing	1	2	3	4	5		
4. Performance Evaluation Tools (PE Tools)							
4.1 Performance evaluation is based on:							
4.1.1 Budget variance analysis	1	2	3	4	5		
4.1.2 Controllable profit	1	2	3	4	5		
4.1.3 Divisional profit	1	2	3	4	5		
4.1.4 Residual income (e.g. interested adjusted profit)	1	2	3	4	5		
4.1.5 Return (profit) on investment	1	2	3	4	5		
4.1.6 Non - financial measures	1	2	3	4	5		
4.1.7 Team performance	1	2	3	4	5		
4.1.8 Employee attitudes	1	2	3	4	5		
4.1.9 Qualitative measures	1	2	3	4	5		
4.1.10 Balance scorecard (mix of financial and non-financial measures)	1	2	3	4	5		
4.1.11 Customer satisfaction surveys	1	2	3	4	5		
4.1.12 Ongoing supplier evaluations	1	2	3	4	5		
5. Strategic Management Accounting Tools (SMA Tools)							
5.1 Competitor cost assessment	1	2	3	4	5		
5.2 Attribute costing	1	2	3	4	5		
5.3 Life cycle costing	1	2	3	4	5		
5.4 Quality costing	1	2	3	4	5		
5.5 Strategic costing	1	2	3	4	5		
5.6 Strategic pricing	1	2	3	4	5		
5.7 Target costing	1	2	3	4	5		

<i>A. Practicing the following techniques over the last 3 years your organization gained some significant benefits</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>If Not used in the last 3 years please tick ✓</i>	<i>Will you be using this technique for the next 3 years? YES/NO</i>
5.8 Value chain costing	1	2	3	4	5		
5.9 Brand value budgeting and monitoring	1	2	3	4	5		
5.10 Competitor appraisal based on published financial statements	1	2	3	4	5		

<i>B. The following other practices have positively affected the use of Management Accounting Practices in your organization.</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. Just-in-Time (JIT)	1	2	3	4	5
2. Computer-integrated manufacturing (CIM)	1	2	3	4	5
3. Business process engineering	1	2	3	4	5
4. Value chain analysis	1	2	3	4	5
5. Flexible manufacturing systems	1	2	3	4	5
6. Total Quality Management (TQM)	1	2	3	4	5
7. Materials requirements planning (MRPI)	1	2	3	4	5
8. Manufacturing resource planning (MRPII)	1	2	3	4	5

<i>C. The following other influences have positively affected the use of Management Accounting Practices in your organization.</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. Academics	1	2	3	4	5
2. Education of students and employees	1	2	3	4	5
3. Government intervention: such as taxation, price controls and ideology.	1	2	3	4	5

<i>C. The following other influences have positively affected the use of Management Accounting Practices in your organization.</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Strongly Agree</i>
4. Professional associations : which promote specific management accounting practices	1	2	3	4	5
5. Individual consultants	1	2	3	4	5
6. Technology	1	2	3	4	5
7. Protection and Competition	1	2	3	4	5
8. Ownership of the firm	1	2	3	4	5
9. Bonus schemes	1	2	3	4	5
10. Inflation	1	2	3	4	5

<i>D. The following management techniques have positively affected the use of Management Accounting Practices in your organization.</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. Statistical quality control	1	2	3	4	5
2. Linking manufacturing/service strategy to business strategy	1	2	3	4	5
3. Integrating information systems in manufacturing /services	1	2	3	4	5
4. Integrating information systems across functions	1	2	3	4	5
5. Integrating information systems with supplier and/or distributors	1	2	3	4	5
6. Certification to quality standards	1	2	3	4	5
7. Downsizing the organization	1	2	3	4	5
8. Reorganizing existing manufacturing/service processes	1	2	3	4	5
9. Implementing new manufacturing / service methods	1	2	3	4	5
10. Occupational health and safety	1	2	3	4	5
11. Establishing supplier partnerships	1	2	3	4	5
12. Outsourcing manufacturing/services	1	2	3	4	5
13. Investing in new physical plant	1	2	3	4	5
14. Linking business processes	1	2	3	4	5

<i>E. The following basic factors have positively affected the use of Management Accounting Practices in your organization</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. Information Technology	1	2	3	4	5
2. External Environment	1	2	3	4	5
3. Organizational Structure	1	2	3	4	5
4. Strategy	1	2	3	4	5
5. National Culture	1	2	3	4	5

<i>F. Do you agree with the following statements as part of your business philosophy ?</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. <u>Financial performance measures</u> such as profit margin, rate of return, etc. receive greater appreciation than the <u>non financial ones</u> such as: quality, customer satisfaction, social responsibility, defect-rates, on-time delivery, machine utilization etc.	1	2	3	4	5
2. When companies operate in <u>unsTable economic environment</u> managers intent to exercise management accounting for <u>profit measurement</u> and focus less on improving and measuring non financial performance	1	2	3	4	5

<i>F. Do you agree with the following statements as part of your business philosophy ?</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Strongly Agree</i>
3. When companies operate in a <u>more stable economic environment</u> the intention of the managers is to focus on management accounting systems for measuring and improving both financial and non financial performance with <u>greater focus on the non financial performance</u>	1	2	3	4	5
4. When companies enjoy <u>better financial conditions</u> managers consider more about long term success based on non - financial performance indicators	1	2	3	4	5
5. When companies go through <u>economic troublesome</u> they try to improve financial performance	1	2	3	4	5
6. Executives tend to use more financial information than non - financial when they operate in environmental and economic uncertainty	1	2	3	4	5

<i>F. Do you agree with the following statements as part of your business philosophy?</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Strongly Agree</i>
7. In your organization you are practicing more traditional (budgeting systems for planning and control, performance measures, e.g. ROI, etc, divisional profit reports, Cost-Volume-Profit techniques for decisions) instead of recently developed management accounting techniques (benchmarking, activity-based techniques (ABC-ABM), balance performance measures, team performance measures, employee-based measures, strategic planning)	1	2	3	4	5
8. In your organization you are willing to adopt recently developed management accounting techniques and abandon the traditional ones	1	2	3	4	5
9. Traditional and recently developed management accounting techniques they do lack relevance	1	2	3	4	5
10. Recently developed management accounting techniques are more beneficiary than traditional ones	1	2	3	4	5

6. General questions

1. How long since your business organization began:

1. The implementation of

- | | | | | | | |
|-----|---------------------------------------|-------|-------|-------|-------|------|
| 1.1 | Planning and Budgeting Tools | 1-2yr | 2-3yr | 3-4yr | 4-5yr | >5yr |
| 1.2 | Decision Support Tools | 1-2yr | 2-3yr | 3-4yr | 4-5yr | >5yr |
| 1.3 | Cost Analysis Tools | 1-2yr | 2-3yr | 3-4yr | 4-5yr | >5yr |
| 1.4 | Performance Evaluation Tools | 1-2yr | 2-3yr | 3-4yr | 4-5yr | >5yr |
| 1.5 | Strategic Management Accounting Tools | 1-2yr | 2-3yr | 3-4yr | 4-5yr | >5yr |

2. Using the following tools in decision-making?
- 2.1 Planning and Budgeting Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr
- 2.2 Decision Support Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr
- 2.3 Cost Analysis Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr
- 2.4 Performance Evaluation Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr
- 2.5 Strategic Management Accounting Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr
3. Using the following tools in quality improvement programme?
- 3.1 Planning and Budgeting Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr
- 3.2 Decision Support Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr
- 3.3 Cost Analysis Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr
- 3.4 Performance Evaluation Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr
- 3.5 Strategic Management Accounting Tools 1-2yr 2-3yr 3-4yr 4-5yr >5yr

<i>2. The following performance indicators of your company for the last 3 years have been improved and are above the average of your industry</i>	<i>Much worst than average</i>	<i>Worst than average</i>	<i>Average</i>	<i>Better than average</i>	<i>Much better than average</i>
<i>Change in Financial Performance (ΔFP)</i>					
<i>Market Performance</i>					
1. Sales Volume	1	2	3	4	5
2. Growth in Sales Volume	1	2	3	4	5
3. Market Share	1	2	3	4	5
4. Growth in Market Share	1	2	3	4	5
<i>Corporate Performance</i>					
5. Return on investment (ROI)	1	2	3	4	5
6. Net profit	1	2	3	4	5
7. Profit margin	1	2	3	4	5
8. Asset turnover	1	2	3	4	5
<i>Change in Non - Financial Performance (ΔNON-FP)</i>					
<i>Operational Performance</i>					
9. Unit cost	1	2	3	4	5
10. Quality - Product	1	2	3	4	5
11. Inventory turnover	1	2	3	4	5
12. Customer satisfaction	1	2	3	4	5
13. Speed of new product introduction	1	2	3	4	5
14. Employee Attitudes and Morale	1	2	3	4	5

3. Your organizational type belongs in one of the following categories which have positively affected the use of Management Accounting Practices in your organization	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
1. Adaptive (It functions in a dynamic environment, which requires decision making to be dynamic and operates in a decentralized fashion)	1	2	3	4	5
2. Running Blind (It functions in a dynamic environment but is run in a more intuitive basis. Its decision making is entrepreneurial in character, and its organizational structure is centralized)	1	2	3	4	5
3. Stagnant (Its environment is stable and its decision making is conservative, involving little analysis. Its organizational structure is strongly centralized)	1	2	3	4	5

4. Current annual sales revenue for your organization, Fiscal Year, 2005 (in company level, not consolidated etc.)
 _____ (please write the number in euro)

5. Current employees, Fiscal Year, 2005 (in company level, not consolidated etc.)
 _____ (please write the number of employees)

6. Indicate the category of industry where your business belongs
 a. Manufacturing b. Services c. Commerce

7. How many management accountants are employed in the your accounting department?
 a. 0 b. 1-2 c. 3-4

8. What percentage of your management accountant(s)
 1. hold a professional certificate? CIMA, ACCA, CPA, SOL,
 other (please specify) _____ %

2. hold a university degree? _____ %

3. hold a postgraduate degree? MBA, MS, _____ Phd _____ %

9. Your position in the organization is
 1. Financial Manager 2. Financial Controller 3. Senior Management Accountant 4. Senior Accountant 5. Management Accountant 6. Accountant 7. Other (please indicate) _____

10. How many years do you have in the above position?
 a. 1-3 b. 4-6 c. 7-9 d. 10-13 e. 13-15 f. above 15

11. Is your company listed in the Athens Stock Exchange? Yes No

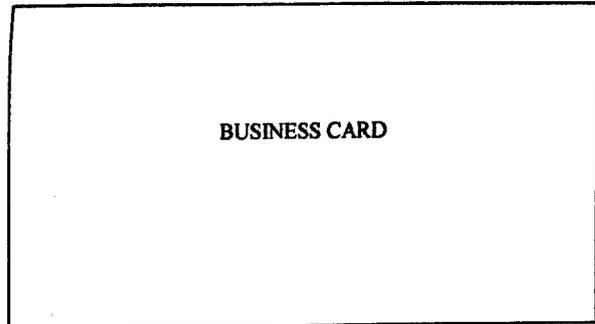
If you like to have our survey's results please indicate your contact details:

Company Name: _____ **Address:** _____

Zip Code - City: _____ **Tel. And Fax Numbers:** _____

Your Name: _____ **E-mail address:** _____

Or alternatively you can place your business card:



Thank you for participating

QUESTIONNAIRE TERMINOLOGY

(for further information about the terms kindly refer in the respective source in the brackets)

A. Management Accounting Practices (Tools)

1. Planning and Budgeting Tools (PB Tools)

1.1 Formal strategic planning: The process of deciding on changes in the objectives of the organization, in the resources that are to be used in attaining these objectives, and in the policies that are to govern the acquisition and use of these resources.

(Anthony, R. N. 1964. Framework for analysis. *Management Services* (March-April): 18-24. Reprinted in Rosen, L. S. 1974. *Topics in Managerial Accounting*, 2nd edition. McGraw-Hill Ryerson Limited: 31-42).

1.2 Capital budgeting techniques: Numerous investment decisions are made using various types of capital budgeting techniques. Methods such as return on investment, pay-back period, and net present value, are among the few capital budgeting techniques used to determine the requirements, profitability and the costs of various projects. Capital budgeting methods require use of estimates and forecasts. The estimates used in capital budgeting must be computed so that the margin of error is small enough to create relevant and reliable numbers for the assessment of various projects.

(Gold, B. 1976. The Shaky Foundations of Capital Budgeting. *California Management Review* (Winter): 51-60).

1.2.1 Return on Investment (ROI): Return on investment or $ROI = \frac{\text{Net Income}}{\text{Investment}}$

An alternative formulation of ROI based on Du Pont's formula is as follows:

$$ROI = (\text{Capital Turnover Ratio})(\text{Profit Margin on Sales}) \\ = \frac{\text{Sales}}{\text{Investment}} \left(\frac{\text{Net Income}}{\text{Sales}} \right)$$

(Management Accounting: Concepts, Techniques & Controversial Issues, James R. Martin, Chapter 14, Investment Centres, Return on Investment, Residual Income and Transfer Pricing

<http://maaw.info/Chapter14.htm#Footnote%201>)

1.2.2 Payback period: The time required for the cash inflows from a capital investment project to equal the cash outflows (CIMA, 1996, p.100).

(Management Accounting Official Terminology, 1996, CIMA, London).

1.2.3 Net present value (NPV): The net present value (NPV) is the difference between the present values of the expected cash inflows and cash outflows. There are three outcomes when NPV is calculated:

1) If $NPV < 0$ then $IRR < \text{Cost of Capital}$

Capital Budgeting Decision: Reject the investment from the cash flow perspective. Other factors could be important,

2) If $NPV = 0$ then $IRR = \text{Cost of Capital}$

Capital Budgeting Decision: Provides the minimum return. Probably reject from the cash flow perspective. Others factors could be important,

3) If $NPV > 0$ then $IRR > \text{Cost of Capital}$

Capital Budgeting Decision: Screen in for further analysis. Other investments may provide better returns and capital should be rationed, i.e., go to the most profitable projects. Others factors could be important.

(Relationship Between the Internal Rate of Return, (IRR), Cost of Capital, and Net Present Value (NPV), Note by James R. Martin, <http://maaw.info/IRRNPVandCostofCapital.htm>)

1.2.4 Internal rate of return (IRR): The internal rate of return (IRR) considers the time value of money and is frequently referred to as the time adjusted rate of return. The IRR is defined as the discount rate that makes the present value of the cash inflows equal to the present value of the cash outflows in a capital budgeting analysis, where all future cash flows are discounted to determine their present values. The relationships are

presented above in the NPV section.

1.2.5 NPV sensitivity analysis: A modelling and risk assessment procedure in which changes are made to significant variables in order to determine the effect of these changes on the planned outcome. Particular attention is thereafter paid to variables identified as being of special significance. (CIMA, 1996, p.41).

(Management Accounting Official Terminology, 1996, CIMA, London).

1.3 Strategic plans developed: See Strategic planning, above.

1.3.1 Together with budgets: -

1.3.2 Separate from budgets: -

1.4. Long Range Forecasting: Up to five years

1.5 Detail budgeting systems for:

1.5.1 Controlling costs: -

1.5.2 Compensating managers: -

1.5.3 Linking financial position, resources and activities (e.g. activity based budgets): -

1.5.4 Planning - Day-to-day operations: -

1.5.5 Planning - Cash flows: Cash Flow Statement: A statement listing the inflows and outflows of cash and cash equivalents for a period, classified under the following standard headings: operating activities, returns on investment and servicing of finance, taxation, investing activities and financing (FRS 1), (CIMA, 1996, p.72).

(Management Accounting Official Terminology, 1996, CIMA, London).

1.5.6 Planning - Financial position: -

1.5.7 Planning - Operational Budgeting: Operational budgeting involves planning for the various revenue producing and cost generating activities of an organization. Budgeting is essentially financial planning, or planning for financial performance where financial performance depends on revenue and cost.

(Management Accounting: Concepts, Techniques & Controversial Issues, James R. Martin, Chapter 9, The Master Budget or Financial Plan.

<http://maaw.info/Chapter9.htm#Budgeting%20Concepts>)

2. Decision Support Tools (DS Tools)

2.1 Decision support systems: -

2.1.1 Cost volume profit analysis (e.g. breakeven analysis): Conventional linear cost-volume-profit (CVP) analysis is a simplified, short term planning technique that evolved as a practical version of the theoretical model of the firm described in economics textbooks. From an accounting perspective it is compatible with the direct, or variable costing method of inventory valuation. To use the CVP model, a company must separate total costs into fixed and variable categories. Variable costs are those costs that vary with changes in the level of activity. The only activities that are allowed to affect variable costs in traditional cost-volume-profit analysis are production output and sales. Fixed costs are those costs that do not vary with changes in the activity level. Conceptually, fixed costs are not constant. By definition, fixed simply means that these costs are not driven by short run changes in production or sales volume. Although explicit recognition of non production volume related cost drivers is a key concept in activity based costing, the idea is ignored in the conventional linear CVP model. Finally, it is important to recognize that the concept of fixed and variable costs is a short run concept. All costs tend to vary in the long run as the company adds to its' capacity to produce and distribute products and services. Therefore, the short run emphasis of CVP analysis tends to conflict with the long run emphasis of activity based costing and the lean enterprise concepts of JIT and TOC. This creates another thought provoking controversial issue.

(Management Accounting: Concepts, Techniques & Controversial Issues, James R. Martin, Chapter 11, Conventional Linear Cost Volume Profit Analysis.

<http://maaw.info/Chapter11.htm#Introduction>)

2.1.2 Product life cycle: Stages of The Product Life Cycle:

- 1) Marketing or Sales Perspective: Start-up > Growth > Maturity > Decline > Abandon.
- 2) Production perspective: Conception > Design > Development > Production > Logistical Support

(Combined Summaries of some Product Life Cycle Management Articles, James R. Martin, <http://maaw.info/PLCSummary.htm#Susman%201989>)

2.1.3 Activity based management: The concept of activity based management (ABM) evolved from the CAM-I (Computer Aided Manufacturing) conceptual design and the contributions of many practitioners and researchers. ABM is a broad umbrella term that includes activity management, activity costing and activity based product costing, as well as many of the concepts associated with just-in-time (JIT) and the theory of constraints (TOC). From an accounting perspective, activity based management represents the potential connection between accounting and the JIT and TOC philosophies. ABM represents an attempt to integrate all of the new accounting and management concepts into one effective system.

(Management Accounting: Concepts, Techniques & Controversial Issues, James R. Martin, Chapter 8, Just-In-Time, Theory of Constraints and Activity Based Management Concepts and Techniques. <http://maaw.info/Chapter8.htm#Introduction>)

2.1.4 Product profitability analysis: -

2.2 Benchmarking of: Management accounting is usually considered a finance function. Benchmarking in this area is being used in two ways:

- 1) It is directed towards planning and budgeting processes, billing, accounts receivable, accounting systems development, payroll, credit and collections, financial analysis, and internal auditing.

- 2) Benchmarking the operations level of both manufacturing and service organizations.

(Elnathan, D., T. W. Lin and S. M. Young. 1996. Benchmarking and management accounting: A framework for research. *Journal of Management Accounting Research* (8): 37-54).

2.2.1 Product characteristics: -

2.2.2 Operational processes: -

2.2.3 Management processes: -

2.2.4 Strategic priorities: -

2.3 Benchmarking carried out:

2.3.1 Within the wider organization: -

2.3.2 With outside organizations: -

2.4 Value chain analysis: A company's value chain consist of the connected set of value-creating activities that are required to produce, distribute and service a product from the initial suppliers of raw materials to the final consumer. According to Michael Porter, a company's value chain is part of a larger value system that includes the value chains of suppliers, distributors and buyers. Each firm in the value system has a separate value chain, but these value chains are interdependent. Buyers (other companies or individuals) depend on distributors who depend on producers who depend on suppliers who in turn depend on other suppliers.

(Porter, M. 1985. *Competitive Advantage*. The Free Press.

Porter, M. 1998. *Competitive Advantage: Creating and Sustaining Superior Performance*. The Free Press).

2.5 Operations research techniques: Manufacturing management techniques, marketing analysis - modelling, logistics, various statistics - data bases and data mining, computer simulations, forecasting, stochastic modelling, etc.

3. Cost Analysis Tools (CA Tools)

3.1 Absorption or Full costing: Full absorption costing (also referred to as full costing and absorption costing) is a traditional method where all manufacturing costs are capitalized in the inventory, i.e., charged to the inventory and become assets. This means that these costs do not become expenses until the inventory is sold. In this way, matching is more

closely approximated. All selling and administrative costs are charged to expenses. Technically, full absorption costing is required for external reporting, although many companies apparently use something less than a pure full absorption costing system. The full absorption method is also frequently used for internal reporting.

(MANAGEMENT AND ACCOUNTING WEB, Management Accounting: Concepts, Techniques & Controversial Issues, James R. Martin, Chapter 2, <http://maaw.info/Chapter2.htm#Footnote%201>)

3.2 Activity - based costing: Activity based costing is based on the following ideas. First, designing, producing and distributing products and services requires many activities to be performed. Performing these activities requires resources to be purchased and used. Purchasing and using resources causes costs to be incurred. Restated in reverse order, the ABC logic is that resources generate costs, activities consume resources and products consume activities. Thus, a company's activities are identified, then costs are traced to these activities (or activity cost pools) based on the resources that they require. Then, costs are assigned, or traced from each of these activity cost pools to the company's products (or services) in proportion to the demands that each product (or service) places on each activity. In ABC, a measure of the relevant activity volume is used to trace each type of costs, rather than exclusively using measurements (or allocation bases) related to the volume of the products or services produced. Using this logic, ABC tends to solve the problems created by traditional cost or inventory valuation methods.

(MANAGEMENT AND ACCOUNTING WEB, Management Accounting: Concepts, Techniques & Controversial Issues, James R. Martin, Chapter 7, Activity Based Product Costing. <http://maaw.info/Chapter7.htm#What%20is%20ABC?>)

3.3 Process Costing: In process costing, costs are accumulated by departments, operations, or processes. The work performed on each unit is standardized, or uniform where a continuous mass production or assembly operation is involved. For example, process costing is used by companies that produce appliances, alcoholic beverages, tires, sugar, breakfast cereals, leather, paint, coal, textiles, lumber, candy, coke, plastics, rubber, cigarettes, shoes, typewriters, cement, gasoline, steel, baby foods, flour, glass, men's suits, pharmaceuticals and automobiles. Process costing is also used in meat packing and for public utility services such as water, gas and electricity. An ordinary process costing system illustrates a cost accounting system that includes normal historical costing as the basic cost system, full absorption costing as the inventory valuation method and process costing as the cost accumulation method.

(MANAGEMENT AND ACCOUNTING WEB, Management Accounting: Concepts, Techniques & Controversial Issues, James Martin, Chapter 2, Cost Accounting Systems and Manufacturing Statements,

<http://maaw.info/Chapter2.htm#Four%20Cost%20Accumulation%20methods>)

3.4 Job Order Costing: In job order costing, costs are accumulated by jobs, orders, contracts, or lots. The key is that the work is done to the customer's specifications. As a result, each job tends to be different. For example, job order costing is used for construction projects, government contracts, shipbuilding, automobile repair, job printing, textbooks, toys, wood furniture, office machines, caskets, machine tools, and luggage. Accumulating the cost of professional services (e.g., lawyers, doctors and CPA's) also fall into this category. A job order cost accounting system usually includes normal historical costing as the basic cost system, full absorption costing as the inventory valuation method and job order costing as the cost accumulation method.

(MANAGEMENT AND ACCOUNTING WEB, Management Accounting: Concepts, Techniques & Controversial Issues, James Martin, Chapter 2, Cost Accounting Systems and Manufacturing

Statements, <http://maaw.info/Chapter2.htm#Four%20Cost%20Accumulation%20methods>)

3.5 Standard Costing: In a standard cost system, all manufacturing costs are applied, or charged to the inventory using standard or predetermined prices, and quantities. The

differences between the applied costs and the actual costs are charged to variance accounts. The variances provide the basis for the concept of accounting control, that is somewhat different from the statistical control concept.

(MANAGEMENT AND ACCOUNTING WEB, Management Accounting: Concepts, Techniques & Controversial Issues, James Martin, Chapter 2, Cost Accounting Systems and Manufacturing

Statements,<http://maaw.info/Chapter2.htm#THE%20FIVE%20PARTS%20OF%20A%20COST%20ACCOUNTING%20SYSTEM>)

3.6 Marginal / Direct Costing: Marginal Cost = the cost of one unit of a product / service which could be avoided if that unit were not produced / provided = variable cost. Contribution = sales revenue - variable (marginal) cost of sales. In marginal costing only variable costs (variable costs) are charged to the cost of making and selling a product or service. Fixed costs are treated as period costs and are deducted from profit. They are therefore charged in full against the profit of the period in which they are incurred.

(CIMA 1996, Operational Cost Accounting, London, p.72).

3.7 Project Costing: Same as Job Order Costing but this one is strictly for projects such as construction, etc.

4. Performance Evaluation Tools (PE Tools)

4.1 Performance evaluation is based on:

4.1.1 Budget variance analysis: -

4.1.2 Controllable profit: -

4.1.3 Divisional profit: -

4.1.4 Residual income (e.g. interested adjusted profit): Residual Income (RI) was developed as an alternative to the return on investment (ROI) measurement to overcome some problems discussed below.

$RI = \text{Net Income} - \text{Minimum Desired Net Income}$.

The minimum desired rate of return used in the RI calculation is usually referred to as the cost of capital. The cost of capital is a weighted average measure of the cost of long term debt and stockholders equity.

(MANAGEMENT AND ACCOUNTING WEB, Management Accounting: Concepts, Techniques & Controversial Issues, James Martin, Chapter 14, Investment Centres, Return on Investment, Residual Income and Transfer Pricing.

<http://maaw.info/Chapter14.htm#Residual%20Income%20and%20EVA>).

4.1.5 Return (profit) on investment: Return on investment or ROI = Net Income + Investment. An alternative formulation of ROI based on Du Pont's formula is as follows:

$ROI = (\text{Capital Turnover Ratio})(\text{Profit Margin on Sales})$

$= (\text{Sales} \div \text{Investment})(\text{Net Income} \div \text{Sales})$

The Capital Turnover Ratio (CTR) reflects management's ability to generate sales from a given investment base. Note that the source of the investment (i.e., debt or stockholders equity) is usually considered irrelevant, but see alternatives below.

The Profit Margin is the Rate of Return on Sales (ROS) and measures management's ability to control the spread between prices and costs. Productivity and cost control are reflected in this measure as well as other factors such as the sales level.

(MANAGEMENT AND ACCOUNTING WEB, Management Accounting: Concepts, Techniques & Controversial Issues, James Martin, Chapter 14, Investment Centres, Return on Investment, Residual Income and Transfer Pricing.

<http://maaw.info/Chapter14.htm#Residual%20Income%20and%20EVA>).

4.1.6 Non - financial measures: Unit cost, Inventory turnover, Customer satisfaction, Speed of new product introduction, Employee Attitudes and Morale, etc.

4.1.7 Team performance: -

4.1.8 Employee attitudes: -

4.1.9 Qualitative measures: Product Quality, Quality Standards and procedures (ISO,

HACCP, etc), etc.

4.1.10 Balance scorecard (mix of financial and non-financial measures): The Balanced Scorecard measures a company's performance through a balance of four perspectives: financial, customers, internal business processes, and learning and growth. These measurements include the traditional financial measurement of past transactions, but they also give a measurement strategy for future operations. The business environment has changed from industrial based to an information based one. This change has brought the focus from tangible assets to intangible ones. No longer can operations be evaluated at a later time, as it is done now through the analysis of financial data. Operations must be conducted in real-time, which means they must operate without boundaries of intercompany segment or even the supply chain.

(Kaplan, R. S. and D. P. Norton. 1996. The Balanced Scorecard: Translating Strategy into Action Boston: Harvard Business School Press.)

4.1.11 Customer satisfaction surveys: -

4.1.12 Ongoing supplier evaluations: -

5.Strategic Management Accounting Tools (SMA Tools)

5.1 Competitor cost assessment: The provision of regularly updated estimates of a competitor's costs based on, for example, appraisal of facilities, technology, economies of scale. Sources include direct observation, mutual suppliers, mutual customers and ex-employees.

5.2 Attribute costing: The costing of specific product attributes that appeal to customers. Attributes that may be costed include: operating performance variables; reliability; warranty arrangements; the degree of finish and trim; assurance of supply; and after sales service.

5.3 Life cycle costing: The appraisal of costs based on the length of stages of a product or service's life. These stages may include design, introduction, growth, decline, and eventually abandonment.

5.4 Quality costing: Quality costs are those costs associated with the creation, identification, repair, and prevention of defects. These can be classified into three categories; prevention, appraisal, and failure costs. Cost of quality reports are produced for the purpose of

directing management attention to prioritise quality problems.

5.5 Strategic costing: The use of cost data based on strategic and marketing information to develop and identify superior strategies that will sustain a competitive advantage.

5.6 Strategic pricing: The analysis of strategic factors in the pricing decision process. These factors may include: competitor price reaction; price elasticity; market growth; economies of scale; and experience.

5.7 Target costing: A method used during product and process design that involves estimating a cost calculated by subtracting a desired profit margin from an estimated (or market-based) price to arrive at a desired production, engineering, or marketing cost. The product is then designed to meet that cost.

5.8 Value chain costing: An activity-based costing approach where costs are allocated to activities required to design, procure, produce, market, distribute, and service a product or service.

5.9 Brand value budgeting and monitoring: Budgeting: The use of brand value as a basis for managerial decisions on allocation of resources to support/enhance a brand position, thus placing attention on management dialogue on brand issues. Monitoring: The financial valuation of a brand through the assessment of brand strength factors such as: leadership; stability; market; internationality; trend; support; and protection combined with historical brand profits.

5.10 Competitor appraisal based on published financial statements: The numerical analysis of a competitor's published statements as part of an assessment of a competitor's key

sources of competitive advantage.

(All above 5.1 - 5.10 from: Guilding,C., Cravens,K., Tayles,M., (2000), An international comparison of strategic management accounting practices, *Management Accounting Research*, 11, pp. 113-135).

B. Other Practices

1. Just-in-Time (JIT): Although the term Just-in-time (JIT) can be defined narrowly as a production or inventory scheduling technique, it is more frequently defined as a very broad philosophy that incorporates many of the concepts of communitarian capitalism. JIT is more appropriately thought of as a philosophy because, even though it includes a variety of techniques, it is much more than a collection of management practices. There is considerable support for the argument that successful implementation of a JIT system requires an entirely different mentality, or attitude, on the part of management and workers than the typical attitudes underlying traditional business practices and relationships. Although a precise, or operational definition of JIT has not been developed, it basically involves the elimination of waste and excess by acquiring resources and performing activities only as they are needed by customers at the next stage in the process. For example, inventory buffers are viewed as an evil in that they hide problems such as defective parts, production bottlenecks, long machine set-ups and competitive behaviour within the company.

(MANAGEMENT AND ACCOUNTING WEB, Management Accounting: Concepts, Techniques & Controversial Issues, James Martin, Chapter 8, Just-In-Time, Theory of Constraints and Activity Based Management Concepts and Techniques, <http://www.maaw.info/Chapter8.htm#Exhibit%208-2>)

2. Computer-integrated manufacturing (CIM): CIM refers to Computer Integrated Manufacturing. CIM may include one or more of the following for a particular firm: 1. Numerically controlled machines. 2. Robots. 3. Computer aided manufacturing (CAM). 4. Flexible manufacturing systems (FMS). CIM results include: 1. Lower direct labour cost. 2. Higher overhead cost. 3. More fixed (sunk) cost as a proportion of total factory cost. 4. More indirect cost and less direct cost. 5. Better quality and manufacturing flexibility allowing firms to compete on the basis of economies of scope (pp.216-217).

(Johnson, H. T. and R. S. Kaplan. 1987. *Relevance Lost: The Rise and Fall of Management Accounting*. Boston: Harvard Business School Press).

3. Business process engineering: Business process reengineering (BPR) is a management approach aiming at improvements by means of elevating efficiency and effectiveness of the processes that exist within and across organizations. The key to BPR is for organizations to look at their business processes from a "clean slate" perspective and determine how they can best construct these processes to improve how they conduct business. Business process reengineering is also known as BPR, Business Process Redesign, Business Transformation, or Business Process Change Management.

(http://en.wikipedia.org/wiki/Business_process_reengineering#Definition_of_BPR).

4. Value chain analysis: A company's value chain consist of the connected set of value-creating activities that are required to produce, distribute and service a product from the initial suppliers of raw materials to the final consumer. According to Michael Porter, a company's value chain is part of a larger value system that includes the value chains of suppliers, distributors and buyers.

(Porter, M. 1985. *Competitive Advantage*. The Free Press).

5. Flexible manufacturing systems: See above - CIM.

6. Total Quality Management (TQM): Applies a belief in quality to the management of all resources and relationships within the firm as a means of developing and sustaining a culture of continuous improvement which focuses on meeting customers' expectations. One of the basic principles of the TQM is that the cost of preventing mistakes is less than the cost of correcting them once they occur. The aim should therefore be to get things right

on the first time. A second basic principle of TQM is dissatisfaction with the status quo: the belief that it is always possible to improve and so the aim should be "to get it more right the next time". This restless searching for continuous improvement is called Kaizen ("little steps" forward) by the Japanese.

(CIMA, 1996, *Management Science Applications*, London, p.424).

7. Materials requirements planning (MRPI): A stock control method in which a master production schedule (MPS) is drawn up based on firm orders and forecast sales for a given period into the future. The production quantities and timings shown in the MPS are translated into materials needs by "exploding" each product's bill of materials, and then comparisons are made between quantities required and quantities on hand. Purchases are made as necessary, taking account of lead times, limitations on capacity and possible bottlenecks, and the desire to utilize capacity fully.

(CIMA, 1996, *Management Science Applications*, London, p.418).

8. Manufacturing resource planning (MRPII): A development of materials requirement planning which integrates labour and machine hour requirements with material needs, and is linked to other systems such as the organization's marketing and financial planning systems.

(CIMA, 1996, *Management Science Applications*, London, p.418).

Appendix 3 – Questionnaire Survey Tables

For easy reference with the questionnaire items the Tables in this section are numbered according to questionnaire format and refer to questions' respective letters, ex. Table B1 refers to question B, etc.

Table A1: Management Accounting Practices: Significant Benefits – Past 3 years

Q Item	Management Accounting Practice	Mean	SDa	C.Vb (%)	Rank
Significant Benefit					
1.5.1	Detail budgeting systems for: Controlling costs	4.60	0.49	10.6739	1
2.1.4	Decision support systems: Product profitability analysis	4.44	0.63	14.1216	2
4.1.1	Performance evaluation is based on: Budget variance analysis	4.43	0.57	12.9571	3
1.5.3	Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets)	4.41	0.62	14.1497	4
4.1.5	Performance evaluation is based on: Return (profit) on investment	4.40	0.64	14.6364	5
1.1	Formal strategic planning	4.39	0.6	13.6902	6
3.1	Cost analysis: Absorption or Full costing	4.39	0.66	15.1025	6
4.1.11	Performance evaluation is based on: Customer satisfaction surveys	4.39	0.6	13.7358	6
1.3.1	Strategic Plans Developed: Together with budgets	4.38	0.7	16.0046	7
1.5.4	Detail budgeting systems for: Planning - Day-to-day operations	4.38	0.62	14.2009	7
1.5.5	Detail budgeting systems for: Planning - Cash flows	4.36	0.7	16.0092	8
2.3.2	Benchmarking carried out: With outside organizations	4.33	0.63	14.5727	9
3.4	Cost analysis: Job Order Costing	4.33	0.7	16.2125	9
3.7	Cost analysis: Project Costing	4.33	0.58	13.4642	9
1.5.7	Detail budgeting systems for: Planning – Operational Budgeting	4.31	0.71	16.3573	10
1.2.3	Capital Budgeting: Net present value (NPV)	4.28	0.73	17.0327	11
4.1.12	Performance evaluation is based on: Ongoing supplier evaluations	4.28	0.7	16.3551	11
2.1.1	Decision support systems: Cost volume profit analysis (e.g. breakeven analysis)	4.27	0.74	17.2365	12
4.1.2	Performance evaluation is based on: Controllable profit	4.25	0.73	17.2235	13
4.1.3	Performance evaluation is based on: Divisional profit	4.24	0.78	18.4434	14
Medium Benefit					
1.4.	Long Range Forecasting	4.23	0.8	18.9598	15
2.2.2	Benchmarking of: Operational processes	4.23	0.78	18.3924	15
1.2.1	Capital Budgeting: Return on Investment (ROI)	4.22	0.8	19.0284	16
2.2.1	Benchmarking of: Product characteristics	4.22	0.68	16.1848	16
2.2.4	Benchmarking of: Strategic priorities	4.22	0.8	18.981	16
2.3.1	Benchmarking carried out: Within the wider organization	4.21	0.87	20.5463	17

Q item	Management Accounting Practice	Mean	SDa	C.Vb (%)	Rank
1.2.4	Capital Budgeting: Internal rate of return (IRR)	4.20	0.64	15.3095	18
4.1.9	Performance evaluation is based on: Qualitative measures	4.19	0.78	18.4964	19
3.2	Cost analysis: Activity – based costing	4.17	0.8	19.1607	20
1.2.2	Capital Budgeting: Payback period	4.13	1	24.2131	21
2.2.3	Benchmarking of: Management processes	4.13	0.67	16.3196	21
5.10	Strategic Man. Accounting: Competitor appraisal based on published financial statements	4.13	0.69	16.6344	21
1.5.6	Detail budgeting systems for: Planning - Financial position	4.11	0.83	20.073	22
3.5	Cost analysis: Standard Costing	4.06	0.79	19.4828	23
5.7	Strategic Man. Accounting: Target costing	4.06	0.86	21.0837	23
1.5.2	Detail budgeting systems for: Compensating managers	4.04	0.88	21.6832	24
2.1.2	Decision support systems: Product life cycle	4.03	0.94	23.2506	25
5.1	Strategic Man. Accounting: Competitor cost assessment	4.01	0.92	22.9426	26
2.4	Value chain analysis	4.00	0.73	18.2	27
2.5	Operations research techniques	3.99	0.86	21.6541	28
Low Benefit					
1.2.5	Capital Budgeting: NPV sensitivity analysis	3.98	1.02	25.5025	29
5.6	Strategic Man. Accounting: Strategic pricing	3.98	0.9	22.6633	29
3.3	Cost analysis: Process Costing	3.94	0.87	22.0558	30
5.3	Strategic Man. Accounting: Life cycle costing	3.93	1.06	27.0483	31
5.4	Strategic Man. Accounting: Quality costing	3.93	0.95	24.0967	31
4.1.7	Performance evaluation is based on: Team performance	3.89	0.97	24.8843	32
5.2	Strategic Man. Accounting: Attribute costing	3.89	0.97	24.9614	32
3.6	Cost analysis: Marginal / Direct Costing	3.88	1.01	26.0052	33
4.1.8	Performance evaluation is based on: Employee attitudes	3.86	0.88	22.9016	34
4.1.10	Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures)	3.85	1.12	28.987	35
4.1.4	Performance evaluation is based on: Residual income (e.g. interested adjusted profit)	3.83	0.9	23.577	36
2.1.3	Decision support systems: Activity based management	3.79	1.14	30.0264	37
5.5	Strategic Man. Accounting: Strategic costing	3.72	0.96	25.914	38
4.1.6	Performance evaluation is based on: Non – financial measures	3.69	0.93	25.0949	39
5.9	Strategic Man. Accounting: Brand value budgeting and monitoring	3.67	1.01	27.6294	40
5.8	Strategic Man. Accounting: Value chain analysis	3.57	1.09	30.4202	41
1.3.2	Strategic Plans Developed: Separate from budgets	2.93	1.52	51.9113	42

^aSD = standard deviation, ^bC.V= coefficient of variation

Table A2: Management Accounting Practices: Past three years implementation

Q item	Management accounting practice	PAST 3 YEARS IMPLEMENTATION	
		%	Rank
High Implementation			
1.1	Formal strategic planning	100	1
1.5.5	Detail budgeting systems for: Planning - Cash flows	100	1
1.5.1	Detail budgeting systems for: Controlling costs	99	2
1.5.2	Detail budgeting systems for: Compensating managers	99	2
1.5.3	Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets)	98	3
4.1.1	Performance evaluation is based on: Budget variance analysis	98	3
4.1.11	Performance evaluation is based on: Customer satisfaction surveys	97	4
4.1.5	Performance evaluation is based on: Return (profit) on investment	95	5
4.1.9	Performance evaluation is based on: Qualitative measures	93	6
1.3.1	Strategic Plans Developed: Together with budgets	92	7
1.4	Long Range Forecasting (LT)	91	8
1.2.3	Capital Budgeting: Net present value (NPV)	90	9
1.5.7	Detail budgeting systems for: Planning – Operational Budgeting	90	9
2.1.4	Decision support systems: Product profitability analysis	90	9
5.10	Strategic Man. Accounting: Competitor appraisal based on published financial statements	90	9
1.5.6	Detail budgeting systems for: Planning - Financial position	88	10
4.1.3	Performance evaluation is based on: Divisional profit	87	11
1.2.1	Capital Budgeting: Return on Investment (ROI)	86	12
2.3.1	Benchmarking carried out: Within the wider organization	86	12
4.1.8	Performance evaluation is based on: Employee attitudes	86	12
Medium Implementation			
1.2.2	Capital Budgeting: Payback period	83	13
4.1.7	Performance evaluation is based on: Team performance	82	14
4.1.12	Performance evaluation is based on: Ongoing supplier evaluations	82	14
1.5.4	Detail budgeting systems for: Planning - Day-to-day operations	81	15
2.3.2	Benchmarking carried out: With outside organizations	80	16
5.6	Strategic Man. Accounting: Strategic pricing	79	17
1.3.2	Strategic Plans Developed: Separate from budgets	78	18
2.5	Operations research techniques	78	18
4.1.6	Performance evaluation is based on: Non – financial measures	78	18
1.2.4	Capital Budgeting: Internal rate of return (IRR)	76	19
2.2.4	Benchmarking of: Strategic priorities	74	20
4.1.2	Performance evaluation is based on: Controllable profit	74	20
5.4	Strategic Man. Accounting: Quality costing	74	20
3.5	Cost analysis: Standard Costing	73	21
5.1	Strategic Man. Accounting: Competitor cost assessment	73	21
5.7	Strategic Man. Accounting: Target costing	73	21

Q Item	Management accounting practice	PAST 3 YEARS IMPLEMENTATION	
		%	Rank
2.1.1	Decision support systems: Cost volume profit analysis (e.g. breakeven analysis)	72	22
2.2.1	Benchmarking of: Product characteristics	72	22
2.2.3	Benchmarking of: Management processes	72	22
3.2	Cost analysis: Activity – based costing	72	22
<i>Low Implementation</i>			
2.2.2	Benchmarking of: Operational processes	71	23
5.2	Strategic Man. Accounting: Attribute costing	71	23
3.7	Cost analysis: Project Costing	69	24
2.1.2	Decision support systems: Product life cycle	67	25
2.4	Value chain analysis	67	25
5.5	Strategic Man. Accounting: Strategic costing	67	25
1.2.5	Capital Budgeting: NPV sensitivity analysis	66	26
2.1.3	Decision support systems: Activity based management	64	27
3.6	Cost analysis: Marginal / Direct Costing	64	27
3.4	Cost analysis: Job Order Costing	63	28
3.1	Cost analysis: Absorption or Full costing	61	29
5.3	Strategic Man. Accounting: Life cycle costing	60	30
4.1.4	Performance evaluation is based on: Residual income (e.g. interested adjusted profit)	59	31
5.9	Strategic Man. Accounting: Brand value budgeting and monitoring	57	32
5.8	Strategic Man. Accounting: Value chain costing	55	33
4.1.10	Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures)	48	34
3.3	Cost analysis: Process Costing	45	35

Table A3: ANOVA (control variable: industry) Variation in the appreciation of the benefits gained

Q Item	Management Accounting Practice	F	Sig.
1.1	Formal strategic planning	3.9942	0.0200
1.2.1	Capital Budgeting: Return on Investment (ROI)	2.2871	0.1047
1.2.2	Capital Budgeting: Payback period	19.9897	0.0000
1.2.3	Capital Budgeting: Net present value (NPV)	11.9028	0.0000
1.2.4	Capital Budgeting: Internal rate of return (IRR)	2.5311	0.0830
1.2.5	Capital Budgeting: NPV sensitivity analysis	3.1964	0.0442
1.3.1	Strategic Plans Developed: Together with budgets	3.8146	0.0239
1.3.2	Strategic Plans Developed: Separate from budgets	26.7052	0.0000
1.4.	Long Range Forecasting	0.1876	0.8291
1.5.1	Detail budgeting systems for: Controlling costs	0.4227	0.6559
1.5.2	Detail budgeting systems for: Compensating managers	2.8043	0.0630
1.5.3	Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets)	0.8199	0.4420
1.5.4	Detail budgeting systems for: Planning - Day-to-day operations	0.4563	0.6344
1.5.5	Detail budgeting systems for: Planning - Cash flows	7.3604	0.0008
1.5.6	Detail budgeting systems for: Planning - Financial position	1.7955	0.1692
1.5.7	Detail budgeting systems for: Planning – Operational Budgeting	6.3240	0.0022
2.1.1	Decision support systems: Cost volume profit analysis (e.g. breakeven analysis)	2.2807	0.1060
2.1.2	Decision support systems: Product life cycle	19.8168	0.0000
2.1.3	Decision support systems: Activity based management	12.9721	0.0000
2.1.4	Decision support systems: Product profitability analysis	7.3722	0.0008
2.2.1	Benchmarking of: Product characteristics	13.1534	0.0000
2.2.2	Benchmarking of: Operational processes	0.4807	0.6194
2.2.3	Benchmarking of: Management processes	6.5500	0.0019
2.2.4	Benchmarking of: Strategic priorities	1.7424	0.1788
2.3.1	Benchmarking carried out: Within the wider organization	15.3189	0.0000
2.3.2	Benchmarking carried out: With outside organizations	2.9423	0.0557
2.4	Value chain analysis	9.8215	0.0001
2.5	Operations research techniques	11.7108	0.0000
3.1	Cost analysis: Absorption or Full costing	12.8032	0.0000

Q Item	Management Accounting Practice	F	Sig.
3.2	Cost analysis: Activity – based costing	0.3400	0.7123
3.3	Cost analysis: Process Costing	3.1684	0.0473
3.4	Cost analysis: Job Order Costing	1.5802	0.2103
3.5	Cost analysis: Standard Costing	13.5775	0.0000
3.6	Cost analysis: Marginal / Direct Costing	19.2742	0.0000
3.7	Cost analysis: Project Costing	3.1184	0.0475
4.1.1	Performance evaluation is based on: Budget variance analysis	2.0262	0.1347
4.1.2	Performance evaluation is based on: Controllable profit	3.9798	0.0208
4.1.3	Performance evaluation is based on: Divisional profit	1.0761	0.3432
4.1.4	Performance evaluation is based on: Residual income (e.g. interested adjusted profit)	5.5758	0.0050
4.1.5	Performance evaluation is based on: Return (profit) on investment	9.0569	0.0002
4.1.6	Performance evaluation is based on: Non – financial measures	1.0819	0.3416
4.1.7	Performance evaluation is based on: Team performance	1.6298	0.1994
4.1.8	Performance evaluation is based on: Employee attitudes	5.1570	0.0068
4.1.9	Performance evaluation is based on: Qualitative measures	1.1790	0.3099
4.1.10	Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures)	18.3674	0.0000
4.1.11	Performance evaluation is based on: Customer satisfaction surveys	8.9242	0.0002
4.1.12	Performance evaluation is based on: Ongoing supplier evaluations	3.2259	0.0425
5.1	Strategic Man. Accounting: Competitor cost assessment	31.4376	0.0000
5.2	Strategic Man. Accounting: Attribute costing	8.3015	0.0004
5.3	Strategic Man. Accounting: Life cycle costing	0.9947	0.3732
5.4	Strategic Man. Accounting: Quality costing	8.6699	0.0003
5.5	Strategic Man. Accounting: Strategic costing	7.5399	0.0008
5.6	Strategic Man. Accounting: Strategic pricing	33.1874	0.0000
5.7	Strategic Man. Accounting: Target costing	0.6722	0.5122
5.8	Strategic Man. Accounting: Value chain analysis	12.4421	0.0000
5.9	Strategic Man. Accounting: Brand value budgeting and monitoring	18.2623	0.0000
5.10	Strategic Man. Accounting: Competitor appraisal based on published financial statements	0.9577	0.3858

Boldface : statistical significant difference at 0.05 level

Table A4: Descriptives – More benefits per sector by practicing various MAP

Q Item	Management Accounting Practice	manufacturing	services	commercial	Total
1.1	Formal strategic planning	4.53	4.48	4.27	4.39
1.2.1	Capital Budgeting: Return on Investment (ROI)	4.23	4.42	4.09	4.22
1.2.2	Capital Budgeting: Payback period	3.49	4.45	4.43	4.13
1.2.3	Capital Budgeting: Net present value (NPV)	4.39	4.62	4.02	4.28
1.2.4	Capital Budgeting: Internal rate of return (IRR)	4.27	4.33	4.06	4.2
1.2.5	Capital Budgeting: NPV sensitivity analysis	3.76	4.29	3.9	3.98
1.3.1	Strategic Plans Developed: Together with budgets	4.19	4.35	4.53	4.38
1.3.2	Strategic Plans Developed: Separate from budgets	1.79	3.52	3.43	2.93
1.4.	Long Range Forecasting	4.21	4.29	4.21	4.23
1.5.1	Detail budgeting systems for: Controlling costs	4.58	4.56	4.63	4.6
1.5.2	Detail budgeting systems for: Compensating managers	4.06	3.8	4.16	4.04
1.5.3	Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets)	4.42	4.32	4.46	4.41
1.5.4	Detail budgeting systems for: Planning - Day-to-day operations	4.43	4.31	4.38	4.38
1.5.5	Detail budgeting systems for: Planning - Cash flows	4.42	4.63	4.18	4.36
1.5.6	Detail budgeting systems for: Planning - Financial position	4.15	4.29	4.0	4.11
1.5.7	Detail budgeting systems for: Planning – Operational Budgeting	4.04	4.49	4.4	4.31
2.1.1	Decision support systems: Cost volume profit analysis (e.g. breakeven analysis)	4.26	4.1	4.41	4.27
2.1.2	Decision support systems: Product life cycle	3.4	4.49	4.23	4.03
2.1.3	Decision support systems: Activity based management	3.1	4.0	4.18	3.79
2.1.4	Decision support systems: Product profitability analysis	4.17	4.59	4.53	4.44
2.2.1	Benchmarking of: Product characteristics	4.38	3.75	4.37	4.22
2.2.2	Benchmarking of: Operational processes	4.14	4.28	4.27	4.23
2.2.3	Benchmarking of: Management processes	4.3	3.81	4.19	4.13
2.2.4	Benchmarking of: Strategic priorities	4.06	4.3	4.32	4.22
2.3.1	Benchmarking carried out: Within the wider organization	3.68	4.28	4.49	4.21
2.3.2	Benchmarking carried out: With outside organizations	4.47	4.15	4.36	4.33
2.4	Value chain analysis	4.25	3.58	4.09	4
2.5	Operations research techniques	3.62	3.89	4.36	3.99
3.1	Cost analysis: Absorption or Full costing	4.49	3.72	4.52	4.39

Q Item	Management Accounting Practice	manufacturing	services	commercial	Total
3.2	Cost analysis: Activity – based costing	4.18	4.23	4.1	4.17
3.3	Cost analysis: Process Costing	4.14	3.7	4.29	3.94
3.4	Cost analysis: Job Order Costing	4.18	4.39	4.45	4.33
3.5	Cost analysis: Standard Costing	4.17	3.6	4.36	4.06
3.6	Cost analysis: Marginal / Direct Costing	3.24	4.3	4.23	3.88
3.7	Cost analysis: Project Costing	4.23	4.5	4.26	4.33
4.1.1	Performance evaluation is based on: Budget variance analysis	4.53	4.31	4.45	4.43
4.1.2	Performance evaluation is based on: Controllable profit	4.08	4.15	4.43	4.25
4.1.3	Performance evaluation is based on: Divisional profit	4.36	4.14	4.22	4.24
4.1.4	Performance evaluation is based on: Residual income (e.g. interested adjusted profit)	3.62	3.78	4.35	3.83
4.1.5	Performance evaluation is based on: Return (profit) on investment	4.11	4.44	4.58	4.4
4.1.6	Performance evaluation is based on: Non – financial measures	3.58	3.64	3.84	3.69
4.1.7	Performance evaluation is based on: Team performance	3.96	3.66	3.99	3.89
4.1.8	Performance evaluation is based on: Employee attitudes	3.52	4.04	3.97	3.86
4.1.9	Performance evaluation is based on: Qualitative measures	4.3	4.06	4.19	4.19
4.1.10	Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures)	3.66	2.95	4.49	3.85
4.1.11	Performance evaluation is based on: Customer satisfaction surveys	4.42	4.09	4.52	4.39
4.1.12	Performance evaluation is based on: Ongoing supplier evaluations	4.43	4.34	4.11	4.28
5.1	Strategic Man. Accounting: Competitor cost assessment	4.32	3.28	4.45	4.01
5.2	Strategic Man. Accounting: Attribute costing	4.19	3.44	4	3.89
5.3	Strategic Man. Accounting: Life cycle costing	3.93	3.77	4.13	3.93
5.4	Strategic Man. Accounting: Quality costing	4.04	3.48	4.24	3.93
5.5	Strategic Man. Accounting: Strategic costing	3.67	3.33	4.12	3.72
5.6	Strategic Man. Accounting: Strategic pricing	4.2	3.2	4.36	3.98
5.7	Strategic Man. Accounting: Target costing	3.93	4.09	4.12	4.06
5.8	Strategic Man. Accounting: Value chain analysis	3.6	3	4.14	3.57
5.9	Strategic Man. Accounting: Brand value budgeting and monitoring	3.27	3.19	4.26	3.67
5.10	Strategic Man. Accounting: Competitor appraisal based on published financial statements	4.02	4.18	4.17	4.13

Boldface: the higher mean

Table A5: Management Accounting Practices - Past Implementation

Q item	Management accounting practice	IMPLEMENTATION PAST 3 YEARS		Importance	CAT*	T/C**
		%	Rank			
1.5.1	Detail budgeting systems for: Controlling costs	99	2	High	F	T
4.1.1	Performance evaluation is based on: Budget variance analysis	98	3	High	F	T
4.1.5	Performance evaluation is based on: Return (profit) on investment	95	5	High	F	T
1.5.7	Detail budgeting systems for: Planning – Operational Budgeting	90	9	High	F	T
2.1.4	Decision support systems: Product profitability analysis	90	9	High	F	T
4.1.3	Performance evaluation is based on: Divisional profit	87	11	High	F	T
4.1.2	Performance evaluation is based on: Controllable profit	74	20	High	F	T
4.1.4	Performance evaluation is based on: Residual income (e.g. interested adjusted profit)	59	31	Low	F	T
1.5.2	Detail budgeting systems for: Compensating managers	99	2	High	NF	T
4.1.11	Performance evaluation is based on: Customer satisfaction surveys	97	4	High	NF	C
4.1.9	Performance evaluation is based on: Qualitative measures	93	6	High	NF	C
4.1.8	Performance evaluation is based on: Employee attitudes	86	12	High	NF	C
4.1.12	Performance evaluation is based on: Ongoing supplier evaluations	82	14	Medium	NF	C
4.1.7	Performance evaluation is based on: Team performance	82	14	Medium	NF	C
4.1.6	Performance evaluation is based on: Non – financial measures	78	18	Medium	NF	C
4.1.10	Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures)	48	34	Low	NF	C
1.5.5	Detail budgeting systems for: Planning - Cash flows	100	1	High	P	T
1.5.6	Detail budgeting systems for: Planning - Financial position	88	10	High	P	T
1.5.4	Detail budgeting systems for: Planning - Day-to-day operations	81	15	Medium	P	T
2.5	Operations research techniques	78	18	Medium	P	C
3.5	Cost analysis: Standard Costing	73	21	Medium	P	T

Q Item	Management accounting practice	IMPLEMENTATION PAST 3 YEARS		Importance	CAT*	T/C**
		%	Rank			
2.1.1	Decision support systems: Cost volume profit analysis (e.g. breakeven analysis)	72	22	Medium	P	T
3.7	Cost analysis: Project Costing	69	24	Medium	P	T
3.6	Cost analysis: Marginal / Direct Costing	64	27	Low	P	T
3.4	Cost analysis: Job Order Costing	63	28	Low	P	T
3.1	Cost analysis: Absorption or Full costing	61	29	Low	P	T
3.3	Cost analysis: Process Costing	45	35	Low	P	T
1.1	Formal strategic planning	100	1	High	P LT	T
1.3.1	Strategic Plans Developed: Together with budgets	92	7	High	P LT	T
1.4	Long Range Forecasting	91	8	High	P LT	T
1.2.3	Capital Budgeting: Net present value (NPV)	90	9	High	P LT	T
1.2.1	Capital Budgeting: Return on Investment (ROI)	86	12	High	P LT	T
1.2.2	Capital Budgeting: Payback period	83	13	Medium	P LT	T
1.3.2	Strategic Plans Developed: Separate from budgets	78	18	Medium	P LT	T
1.2.4	Capital Budgeting: Internal rate of return (IRR)	76	19	Medium	P LT	T
1.2.5	Capital Budgeting: NPV sensitivity analysis	66	26	Low	P LT	T
1.5.3	Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets)	98	3	High	SP	T
5.10	Strategic Man. Accounting: Competitor appraisal based on published financial statements	90	9	High	SP	C
2.3.1	Benchmarking carried out: Within the wider organization	86	12	High	SP	C
2.3.2	Benchmarking carried out: With outside organizations	80	16	Medium	SP	C
5.6	Strategic Man. Accounting: Strategic pricing	79	17	Medium	SP	C
5.4	Strategic Man. Accounting: Quality costing	74	20	Medium	SP	C
2.2.4	Benchmarking of: Strategic priorities	74	20	Medium	SP	C
5.7	Strategic Man. Accounting: Target costing	73	21	Medium	SP	C
5.1	Strategic Man. Accounting: Competitor cost assessment	73	21	Medium	SP	C
2.2.1	Benchmarking of: Product characteristics	72	22	Medium	SP	C
2.2.3	Benchmarking of: Management processes	72	22	Medium	SP	C
3.2	Cost analysis: Activity – based costing	72	22	Medium	SP	C
5.2	Strategic Man. Accounting: Attribute costing	71	23	Low	SP	C

Q item	Management accounting practice	IMPLEMENTATION PAST 3 YEARS		Importance	CAT*	T/C**
		%	Rank			
2.2.2	Benchmarking of: Operational processes	71	23	Low	SP	C
2.1.2	Decision support systems: Product life cycle	67	25	Low	SP	C
2.4	Value chain analysis	67	25	Low	SP	C
5.5	Strategic Man. Accounting: Strategic costing	67	25	Low	SP	C
2.1.3	Decision support systems: Activity based management	64	27	Low	SP	C
5.3	Strategic Man. Accounting: Life cycle costing	60	30	Low	SP	C
5.9	Strategic Man. Accounting: Brand value budgeting and monitoring	57	32	Low	SP	C
5.8	Strategic Man. Accounting: Value chain costing	55	33	Low	SP	C
CAT*: F: Financial, P: Planning, P LT: Planning Long Term, SP: Strategic Practices						
**T=Traditional Practices (count) 29 C=Contemporary Practices (count) 28 Total 57						

Table A6 Management Accounting Practices: Past Benefit - Future Emphasis

Q item	Management Accounting Practice	Mean	SD ^a	C.V ^b (%)	Rank Past Bnfts	Benefit Rec/d	% of Fut. Emp h.	Rank Fut. Emp h.	CA T*	T/C**
1.5.1	Detail budgeting systems for: Controlling costs	4.60	0.49	10.67	1	High	99	2	F	T
2.1.4	Decision support systems: Product profitability analysis	4.44	0.63	14.12	2	High	90	9	F	T
4.1.1	Performance evaluation is based on: Budget variance analysis	4.43	0.57	12.96	3	High	98	3	F	T
4.1.5	Performance evaluation is based on: Return (profit) on investment	4.40	0.64	14.64	5	High	95	5	F	T
1.5.7	Detail budgeting systems for: Planning – Operational Budgeting	4.31	0.71	16.36	10	High	90	9	F	T
4.1.2	Performance evaluation is based on: Controllable profit	4.25	0.73	17.22	13	High	72	21	F	T
4.1.3	Performance evaluation is based on: Divisional profit	4.24	0.78	18.44	14	High	87	11	F	T

Q Item	Management Accounting Practice	Mean	SD ^a	C.V. ^b (%)	Rank Past Bnfts	Benefit Rec/d	% of Fut. Emp h.	Rank Fut. Emp h.	CA T*	T/C **
4.1.4	Performance evaluation is based on: Residual income (e.g. interested adjusted profit)	3.83	0.9	23.58	36	Low	52	32	F	T
4.1.1 1	Performance evaluation is based on: Customer satisfaction surveys	4.39	0.6	13.74	6	High	97	4	NF	C
4.1.1 2	Performance evaluation is based on: Ongoing supplier evaluations	4.28	0.7	16.36	11	High	82	13	NF	C
4.1.9	Performance evaluation is based on: Qualitative measures	4.19	0.78	18.50	19	Medium	93	6	NF	C
1.5.2	Detail budgeting systems for: Compensating managers	4.04	0.88	21.68	24	Medium	99	2	NF	T
4.1.7	Performance evaluation is based on: Team performance	3.89	0.97	24.88	32	Low	77	17	NF	C
4.1.8	Performance evaluation is based on: Employee attitudes	3.86	0.88	22.90	34	Low	81	14	NF	C
4.1.1 0	Performance evaluation is based on: Balance scorecard (mix of financial and non-financial measures)	3.85	1.12	28.99	35	Low	48	34	NF	C
4.1.6	Performance evaluation is based on: Non – financial measures	3.69	0.93	25.09	39	Low	78	16	NF	C
3.1	Cost analysis: Absorption or Full costing	4.39	0.66	15.10	6	High	61	30	P	T
1.5.4	Detail budgeting systems for: Planning - Day-to-day operations	4.38	0.62	14.20	7	High	81	14	P	T
1.5.5	Detail budgeting systems for: Planning - Cash flows	4.36	0.7	16.01	8	High	100	1	P	T
3.7	Cost analysis: Project Costing	4.33	0.58	13.46	9	High	68	24	P	T
3.4	Cost analysis: Job Order Costing	4.33	0.7	16.21	9	High	62	29	P	T
2.1.1	Decision support systems: Cost volume profit analysis (e.g. breakeven analysis)	4.27	0.74	17.24	12	High	72	21	P	T
1.5.6	Detail budgeting systems for: Planning - Financial position	4.11	0.83	20.07	22	Medium	88	10	P	T
3.5	Cost analysis: Standard Costing	4.06	0.79	19.48	23	Medium	67	25	P	T
2.5	Operations research techniques	3.99	0.86	21.65	28	Medium	72	21	P	C
3.3	Cost analysis: Process Costing	3.94	0.87	22.06	30	Low	39	35	P	T
3.6	Cost analysis: Marginal / Direct Costing	3.88	1.01	26.01	33	Low	62	29	P	T
1.1	Formal strategic planning	4.39	0.6	13.69	6	High	100	1	P LT	T

Q item	Management Accounting Practice	Mean	SD ^a	C.V ^b (%)	Rank Past Bnfts	Benefit Rec/d	% of Fut. Emp h.	Rank Fut. Emp h.	CA T*	T/C **
1.3.1	Strategic Plans Developed: Together with budgets	4.38	0.7	16.00	7	High	92	7	P LT	T
1.2.3	Capital Budgeting: Net present value (NPV)	4.28	0.73	17.03	11	High	90	9	P LT	T
1.4.	Long Range Forecasting	4.23	0.8	18.96	15	Medium	91	8	P LT	T
1.2.1	Capital Budgeting: Return on Investment (ROI)	4.22	0.8	19.03	16	Medium	86	12	P LT	T
1.2.4	Capital Budgeting: Internal rate of return (IRR)	4.20	0.64	15.31	18	Medium	76	18	P LT	T
1.2.2	Capital Budgeting: Payback period	4.13	1	24.21	21	Medium	92	7	P LT	T
1.2.5	Capital Budgeting: NPV sensitivity analysis	3.98	1.02	25.50	29	Low	66	26	P LT	T
1.3.2	Strategic Plans Developed: Separate from budgets	2.93	1.52	51.91	42	Low	74	20	P LT	T
1.5.3	Detail budgeting systems for: Linking financial position, resources and activities (e.g. activity based budgets)	4.41	0.62	14.15	4	High	98	3	SP	T
2.3.2	Benchmarking carried out: With outside organizations	4.33	0.63	14.57	9	High	80	15	SP	C
2.2.2	Benchmarking of: Operational processes	4.23	0.78	18.39	15	Medium	69	23	SP	C
2.2.1	Benchmarking of: Product characteristics	4.22	0.68	16.18	16	Medium	72	21	SP	C
2.2.4	Benchmarking of: Strategic priorities	4.22	0.8	18.98	16	Medium	72	21	SP	C
2.3.1	Benchmarking carried out: Within the wider organization	4.21	0.87	20.55	17	Medium	86	12	SP	C
3.2	Cost analysis: Activity – based costing	4.17	0.8	19.16	20	Medium	69	23	SP	C
5.10	Strategic Man. Accounting: Competitor appraisal based on published financial statements	4.13	0.69	16.63	21	Medium	90	9	SP	C
2.2.3	Benchmarking of: Management processes	4.13	0.67	16.32	21	Medium	67	25	SP	C
5.7	Strategic Man. Accounting: Target costing	4.06	0.86	21.08	23	Medium	71	22	SP	C
2.1.2	Decision support systems: Product life cycle	4.03	0.94	23.25	25	Medium	64	28	SP	C
5.1	Strategic Man. Accounting: Competitor cost assessment	4.01	0.92	22.94	26	Medium	67	25	SP	C
2.4	Value chain analysis	4.00	0.73	18.20	27	Medium	65	27	SP	C
5.6	Strategic Man. Accounting: Strategic pricing	3.98	0.9	22.66	29	Low	75	19	SP	C
5.4	Strategic Man. Accounting: Quality costing	3.93	0.95	24.10	31	Low	69	23	SP	C
5.3	Strategic Man. Accounting: Life cycle costing	3.93	1.06	27.05	31	Low	55	31	SP	C

Q item	Management Accounting Practice	Mean	SD ^a	C.V. ^b (%)	Rank Past Bnfts	Benefit Rec/d	% of Fut. Emp h.	Rank Fut. Emp h.	CAT*	T/C**
5.2	Strategic Man. Accounting: Attribute costing	3.89	0.97	24.96	32	Low	67	25	SP	C
2.1.3	Decision support systems: Activity based management	3.79	1.14	30.03	37	Low	62	29	SP	C
5.5	Strategic Man. Accounting: Strategic costing	3.72	0.96	25.91	38	Low	62	29	SP	C
5.9	Strategic Man. Accounting: Brand value budgeting and monitoring	3.67	1.01	27.63	40	Low	55	31	SP	C
5.8	Strategic Man. Accounting: Value chain costing	3.57	1.09	30.42	41	Low	50	33	SP	C
**T=Traditional Practices (count) C=Contemporary Practices (count) Total		29 28 57	*SD = standard deviation, ^bC.V= coefficient of variation							
CAT*: F: Financial, P: Planning, P LT: Planning Long Term, SP: Strategic Practices										

Table A7: Management Accounting Practices - Comparison of Rankings

Q item	Management Accounting Practice	T/C**	Rank Past Benefits	Rank Future Emphasis	dif in rankings
Increased Ranking					
1.5.5	Detail budgeting systems for: Planning - Cash flows	T	8	1	7
1.5.2	Detail budgeting systems for: Compensating managers	T	24	2	22
4.1.9	Performance evaluation is based on: Qualitative measures	C	19	6	13
1.2.2	Capital Budgeting: Payback period	T	21	7	14
1.4.	Long Range Forecasting	T	15	8	7
5.10	Strategic Man. Accounting: Competitor appraisal based on published financial statements	C	21	9	12
1.5.6	Detail budgeting systems for: Planning - Financial position	T	22	10	12
4.1.8	Performance evaluation is based on: Employee attitudes	C	34	14	20
4.1.6	Performance evaluation is based on: Non – financial measures	C	39	16	23
4.1.7	Performance evaluation is based on: Team performance	C	32	17	15
5.6	Strategic Man. Accounting: Strategic pricing	C	29	19	10
1.3.2	Strategic Plans Developed: Separate from budgets	T	42	20	22
2.5	Operations research techniques	C	28	21	7
5.4	Strategic Man. Accounting: Quality costing	C	31	23	8
5.2	Strategic Man. Accounting: Attribute costing	C	32	25	7

Q item	Management Accounting Practice	T/C**	Rank Past Benefits	Rank Future Emphasis	dif In rankings
2.1.3	Decision support systems: Activity based management	C	37	29	8
5.5	Strategic Man. Accounting: Strategic costing	C	38	29	9
5.9	Strategic Man. Accounting: Brand value budgeting and monitoring	C	40	31	9
5.8	Strategic Man. Accounting: Value chain costing	C	41	33	8
	Traditional Practices:	6			
	Contemporary Practices:	13			
Decreased Ranking					
2.1.4	Decision support systems: Product profitability analysis	T	2	9	-7
1.5.4	Detail budgeting systems for: Planning - Day-to-day operations	T	7	14	-7
2.3.2	Benchmarking carried out: With outside organizations	C	9	15	-6
2.1.1	Decision support systems: Cost volume profit analysis (e.g. breakeven analysis)	T	12	21	-9
4.1.2	Performance evaluation is based on: Controllable profit	T	13	21	-8
2.2.2	Benchmarking of: Operational processes	C	15	23	-8
3.7	Cost analysis: Project Costing	T	9	24	-15
3.4	Cost analysis: Job Order Costing	T	9	29	-20
3.1	Cost analysis: Absorption or Full costing	T	6	30	-24
	Traditional Practices:	7			
	Contemporary Practices:	2			
Total Traditional Practices:		13			
Total Contemporary Practices:		15			
T/C**: T=Traditional, C:Contemporary					

Table B1: Other Practices that positively affected the use of MAP

Other Practices	Mean	SD	Not use (%)	C.V(%)	Rank
3. Business process engineering	4.04	0.774	61.62	19.15	1
5. Flexible manufacturing systems	3.97	0.655	56.06	16.52	2
6. Total Quality Management (TQM)	3.97	0.818	56.57	20.63	3
7. Materials requirements planning (MRP)	3.97	0.741	54.55	18.69	4
2. Computer-integrated manufacturing (CIM)	3.94	0.780	59.09	19.81	5
8. Manufacturing resource planning	3.93	0.746	62.63	18.98	6
1. Just-in-Time (JIT)	3.64	0.819	51.01	22.50	7
4. Value chain analysis	3.58	0.830	65.15	23.18	8

^aSD = standard deviation, ^bC.V= coefficient of variation

**Table B2: ANOVA (control variable: industry)
Variation in the appreciation of the benefits gained**

Other Practices	F	Sig.
1. Just-in-Time (JIT)	21.043	.000
2. Computer-integrated manufacturing (CIM)	4.127	.020
3. Business process engineering	4.777	.011
4. Value chain analysis	14.900	.000
5. Flexible manufacturing systems	7.133	.001
6. Total Quality Management (TQM)	27.967	.000
7. Materials requirements planning (MRP)	10.925	.000
8. Manufacturing resource planning	14.068	.000

Boldface : statistical significant difference at 0.05 level

Table B3: Descriptives – More positive effects in the use of MAP by using the following Other Practices

Other Practices	manufacturing	services	commercial	Total
1. Just-in-Time (JIT)	3.55	3.08	4.29	3.64
2. Computer-integrated manufacturing (CIM)	3.93	3.77	4.63	3.94
3. Business process engineering	3.80	4.24	4.45	4.04
4. Value chain analysis	3.58	3.20	4.75	3.58
5. Flexible manufacturing systems	4.04	3.66	4.38	3.97
6. Total Quality Management (TQM)	4.28	3.16	4.38	3.97
7. Materials requirements planning (MRP)	4.19	3.50	4.23	3.97
8. Manufacturing resource planning	4.15	3.40	4.50	3.93

Boldface: the higher mean

Table C1: Other Influences that positively affected the use of MAP

Other Influences	Mean	SD	Not use (%)	C.V(%)	Rank
6. Technology	4.43	0.554	16.16	12.51	1
2. Education of students and employees	4.40	0.544	5.05	12.34	2
5. Individual consultants	4.30	0.631	18.18	14.67	3
7. Protection and Competition	3.82	0.755	13.13	19.76	4
9. Bonus schemes	3.80	0.958	27.27	25.21	5
8. Ownership of the firm	3.70	1.057	10.10	28.58	6
1. Academics	3.62	1.145	23.23	31.63593	7
3. Government intervention: such as taxation, price controls and ideology.	3.59	1.054	12.12	29.33	8
4. Professional associations : which promote specific management accounting practices	3.47	0.999	13.13	28.84	9
10. Inflation	3.02	1.181	17.67	39.04	10

^aSD = standard deviation, ^bC.V= coefficient of variation

**Table C2: ANOVA (control variable: industry)
Variation in the appreciation of the benefits gained**

Other Influences	F	Sig.
1. Academics	9.711	.000
2. Education of students and employees	2.490	.086
3. Government intervention: such as taxation, price controls and ideology.	3.477	.033
4. Professional associations : which promote specific management accounting practices	.987	.375
5. Individual consultants	1.148	.320
6. Technology	.088	.916
7. Protection and Competition	3.414	.035
8. Ownership of the firm	9.264	.000
9. Bonus schemes	3.824	.024
10. Inflation	1.344	.264

Boldface : statistical significant difference at 0.05 level

Table C3: Descriptives – More positive effects in the use of MAP by using the following Other Influences

Other Influences	manufacturing	services	commercial	Total
1. Academics	4,23	3,43	3,34	3,62
	4.26	4.46	4.46	4.40
2. Education of students and employees				
3. Government intervention: such as taxation, price controls and ideology.	3.52	3.90	3.42	3.59
4. Professional associations : which promote specific management accounting practices	3.52	3.59	3.35	3.47
	4.33	4.18	4.36	4.30
5. Individual consultants				
6. Technology	4.41	4.41	4.45	4.43
	4.07	3.73	3.73	3.82
7. Protection and Competition				
	3.85	3.19	3.94	3.70
8. Ownership of the firm				
9. Bonus schemes	3.86	4.08	3.55	3.80
10. Inflation	2.96	3.27	2.91	3.02

Boldface: the higher mean

Table D1: Management Techniques that positively affected the use of MAP

Management Techniques	Mean	SD ^a	Not use (%)	C.V ^b (%)	Rank
4. Integrating information systems across functions	4.40	.541	20.2	12.29545	1
	4.30	.734	19.2	17.06977	2
6. Certification to quality standards					
9. Implementing new manufacturing / service methods	4.28	.653	35.9	15.25701	3
	4.26	.690	21.2	16.19718	4
11. Establishing supplier partnerships					
13. Investing in new physical plant	4.26	.843	29.3	19.78873	5
	4.25	.713	16.7	16.77647	6
14. Linking business processes					
3. Integrating information systems in manufacturing/services	4.23	.815	37.4	19.26714	7
1. Statistical quality control	4.19	.646	37.4	15.41766	8
10. Occupational health and safety	4.19	.792	29.3	18.90215	9

Management Techniques	Mean	SD ^a	Not use (%)	C.V ^b (%)	Rank
2. Linking manufacturing/service strategy to business strategy	4.02	.880	43.4	21.89055	10
8. Reorganizing existing manufacturing/service processes	3.88	1.071	37.4	27.60309	11
12. Outsourcing manufacturing/services	3.86	.919	43.4	23.80829	12
5. Integrating information systems with supplier and/or distributors	3.58	1.120	46.5	31.28492	13
7. Downsizing the organization	3.09	1.190	38.9	38.51133	14

^aSD = standard deviation, ^bC.V= coefficient of variation

**Table D2: ANOVA (control variable: industry)
Variation in the appreciation of the benefits gained**

Management Techniques	F	Sig.
1. Statistical quality control	2.721	.070
2. Linking manufacturing/service strategy to business strategy	1.935	.149
3. Integrating information systems in manufacturing/services	.345	.709
4. Integrating information systems across functions	.724	.486
5. Integrating information systems with supplier and/or distributors	16.596	.000
6. Certification to quality standards	1.038	.357
7. Downsizing the organization	28.203	.000
8. Reorganizing existing manufacturing/service processes	5.635	.005
9. Implementing new manufacturing / service methods	.912	.405
10. Occupational health and safety	2.460	.089
11. Establishing supplier partnerships	3.645	.028
12. Outsourcing manufacturing/services	7.317	.001
13. Investing in new physical plant	.951	.389
14. Linking business processes	2.489	.086

Boldface : statistical significant difference at 0.05 level

Table D3: Descriptives – More positive effects in the use of MAP by using the following Management Techniques

Management Techniques	manufacturing	services	commercial	Total
1. Statistical quality control	4.34	4.14	4.03	4.19
2. Linking manufacturing/service strategy to business strategy	3.98	3.86	4.29	4.02
3. Integrating information systems in manufacturing/services	4.26	4.29	4.15	4.23
4. Integrating information systems across functions	4.47	4.36	4.36	4.40
5. Integrating information systems with supplier and/or distributors	3.05	4.46	3.58	3.58
6. Certification to quality standards	4.34	4.39	4.20	4.30
7. Downsizing the organization	2.43	3.93	2.77	3.09
8. Reorganizing existing manufacturing/service processes	3.61	4.31	3.72	3.88
9. Implementing new manufacturing / service methods	4.24	4.41	4.23	4.28
10. Occupational health and safety	4.06	4.40	4.13	4.19
11. Establishing supplier partnerships	4.09	4.22	4.44	4.26
12. Outsourcing manufacturing/services	3.64	3.57	4.26	3.86
13. Investing in new physical plant	4.30	4.11	4.34	4.26
14. Linking business processes	4.13	4.44	4.22	4.25

Boldface: the higher mean

Table E1: Other Practices that positively affected the use of MAP

Basic Factors	Mean	SD ^a	C.V ^b (%)	Not use (%)	Rank
1. Information Technology	4.46	.666	14.93274	0.0	1
4. Strategy	4.30	.657	15.27907	3.0	2
3. Organizational Structure	4.25	.701	16.49412	0.0	3
2. External Environment	3.99	.891	22.33083	8.6	4
5. National Culture	3.65	.994	27.23288	14.1	5

^aSD = standard deviation. ^bC.V = coefficient of variation

**Table E2: ANOVA (control variable: industry)
Variation in the appreciation of the benefits gained**

Basic Factors	F	Sig.
1. Information Technology	7.242	.001
2. External Environment	.875	.419
3. Organizational Structure	23.580	.000
4. Strategy	.205	.815
5. National Culture	.316	.729

Boldface : statistical significant difference at 0.05 level

Table E3: Descriptives – Factors that have positively affected the use of MAP

Basic Factors	manufacturing	services	commercial	Total
1. Information Technology	4.55	4.17	4.58	4.46
2. External Environment	4.04	4.11	3.90	3.99
3. Organizational Structure	4.45	3.73	4.42	4.25
4. Strategy	4.26	4.35	4.30	4.30
5. National Culture	3.57	3.72	3.66	3.65

Boldface: the higher mean

Table F1: Items that included in company's Business Philosophy

Business Philosophy	Mean	SD	C.V(%)	Rank
5. When companies go through <u>economic troublesome</u> they try to improve financial performance	4.22	.734	17.39336	1
6. Executives tend to use more financial information than non – financial when they operate in environmental and economic uncertainty	4.03	.769	19.08189	2
4. When companies enjoy <u>better financial conditions</u> managers consider more about long term success based on non – financial performance indicators	3.83	.921	24.047	3
8. In your organization you are willing to adopt recently developed management accounting techniques and abandon the traditional ones	3.74	1.085	29.0107	4
7. In your organization you are practicing more traditional (budgeting systems for planning and control, performance measures, eg ROI, etc, divisional profit reports, Cost-Volume-Profit techniques for decisions) instead of recently developed management accounting techniques (benchmarking, activity-based techniques (ABC-ABM), balance performance measures, team performance measures, employee-based measures, strategic planning)	3.63	1.206	33.22314	5

Business Philosophy	Mean	SD	C.V(%)	Rank
3. When companies operate in a <u>more stable economic environment</u> the intention of the managers is to focus on management accounting systems for measuring and improving both financial and non financial performance <u>with greater focus on the non financial performance</u>	3.60	1.077	29.91667	6
10. Recently developed management accounting techniques are more beneficiary than traditional ones	3.57	.857	24.0056	7
2. When companies operate in <u>unstable economic environment</u> managers intent to exercise management accounting <u>for profit measurement</u> and focus less on improving and measuring non financial performance	3.44	1.122	32.61628	8
1. <u>Financial performance measures</u> such as profit margin, rate of return, etc. receive greater appreciation than the <u>non financial ones</u> such as: quality, customer satisfaction, social responsibility, defect-rates, on-time delivery, machine utilization etc.	3.19	1.302	40.81505	9
9. Traditional and recently developed management accounting techniques they do lack relevance	2.76	1.047	37.9347	10

^aSD = standard deviation, ^bC.V= coefficient of variation

**Table F2: ANOVA (control variable: industry)
Variation in the appreciation of the Business Philosophy**

Business Philosophy	F	Sig.
1. <u>Financial performance measures</u> such as profit margin, rate of return, etc. receive greater appreciation than the <u>non financial ones</u> such as: quality, customer satisfaction, social responsibility, defect-rates, on-time delivery, machine utilization etc.	3.199	.043
2. When companies operate in <u>unstable economic environment</u> managers intent to exercise management accounting <u>for profit measurement</u> and focus less on improving and measuring non financial performance	1.181	.309
3. When companies operate in a <u>more stable economic environment</u> the intention of the managers is to focus on management accounting systems for measuring and improving both financial and non financial performance <u>with greater focus on the non financial performance</u>	1.991	.139
4. When companies enjoy <u>better financial conditions</u> managers consider more about long term success based on non – financial performance indicators	23.165	.000
5. When companies go through <u>economic troublesome</u> they try to improve financial performance	8.523	.000
6. Executives tend to use more financial information than non – financial when they operate in environmental and economic uncertainty	3.709	.026
7. In your organization you are practicing more traditional (budgeting systems for planning and control, performance measures, e.g. ROI, etc, divisional profit reports, Cost-Volume-Profit techniques for decisions) instead of recently developed management accounting techniques (benchmarking, activity-based techniques (ABC-ABM), balance performance measures, team performance measures, employee-based measures, strategic planning)	16.283	.000

Business Philosophy	F	Sig.
8. In your organization you are willing to adopt recently developed management accounting techniques and abandon the traditional ones	4.505	.012
9. Traditional and recently developed management accounting techniques they do lack relevance	21.729	.000
10. Recently developed management accounting techniques are more beneficiary than traditional ones	3.638	.028

Boldface : statistical significant difference at 0.05 level

Table F3: Descriptives – Most favorite items as per Business Philosophy

Business Philosophy	manufacturing	services	commercial	Total
1. <u>Financial performance measures</u> such as profit margin, rate of return, etc. receive greater appreciation than the <u>non financial ones</u> such as: quality, customer satisfaction, social responsibility, defect-rates, on-time delivery, machine utilization etc.	2.85	3.48	3.22	3.19
2. When companies operate in <u>unsTable economic environment</u> managers intent to exercise management accounting <u>for profit measurement</u> and focus less on improving and measuring non financial performance	3.30	3.35	3.57	3.44
3. When companies operate in a <u>more sTable economic environment</u> the intention of the managers is to focus on management accounting systems for measuring and improving both financial and non financial performance <u>with greater focus on the non financial performance</u>	3.57	3.37	3.74	3.60
4. When companies enjoy <u>better financial conditions</u> managers consider more about long term success based on non – financial performance indicators	4.28	3.20	3.91	3.83
5. When companies go through <u>economic troublesome</u> they try to improve financial performance	3.94	4.13	4.43	4.22
6. Executives tend to use more financial information than non – financial when they operate in environmental and economic uncertainty	3.83	4.24	4.03	4.03
7. In your organization you are practicing more traditional (budgeting systems for planning and control, performance measures, e.g. ROI, etc, divisional profit reports, Cost-Volume-Profit techniques for decisions) instead of recently developed management accounting techniques (benchmarking, activity-based techniques (ABC-ABM), balance performance measures, team performance measures, employee-based measures, strategic planning)	3.70	4.31	3.20	3.63

Business Philosophy	manufacturing	services	commercial	Total
8. In your organization you are willing to adopt recently developed management accounting techniques and abandon the traditional ones	3.38	3.96	3.83	3.74
9. Traditional and recently developed management accounting techniques they do lack relevance	2.89	3.40	2.33	2.76
10. Recently developed management accounting techniques are more beneficiary than traditional ones	3.74	3.31	3.61	3.57

Boldface: the higher mean

**Table G.1.1: How long since your business organization began:
The implementation of PB Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2-3 years	1	.5	.5	.5
	3-4 years	8	4.0	4.2	4.7
	4-5 years	42	21.2	22.1	26.8
	>5 years	139	70.2	73.2	100.0
	Total	190	96.0	100.0	
Missing	System	8	4.0		
Total		198	100.0		

**Table G.1.2: How long since your business organization began:
The implementation of DS Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	6	3.0	3.5	3,5
	2-3 years	6	3.0	3.5	7,1
	3-4 years	2	1.0	1.2	8,2
	4-5 years	40	20.2	23.5	31,8
	>5 years	116	58.6	68.2	100,0
	Total	170	85.9	100.0	
Missing	System	28	14.1		
Total		198	100.0		

**Table G.1.3: How long since your business organization began:
The implementation of CA Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	2	1.0	1.0	1.0
	2-3 years	10	5.1	5.1	6.1

		Frequency	Percent	Valid Percent	Cumulative Percent
	3-4 years	3	1.5	1.5	7.6
	4-5 years	28	14.1	14.1	21.7
	>5 years	155	78.3	78.3	100.0
	Total	198	100.0	100.0	

**Table G.1.4: How long since your business organization began:
The implementation of PE Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	16	8.1	8.1	8.1
	2-3 years	6	3.0	3.0	11.2
	3-4 years	20	10.1	10.2	21.3
	4-5 years	29	14.6	14.7	36.0
	>5 years	126	63.6	64.0	100.0
	Total	197	99.5	100.0	
Missing	System	1	.5		
Total		198	100.0		

**Table G.1.5: How long since your business organization began:
The implementation of SMA Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	4	2.0	2.5	2.5
	2-3 years	8	4.0	4.9	7.4
	3-4 years	12	6.1	7.4	14.7
	4-5 years	30	15.2	18.4	33.1
	>5 years	109	55.1	66.9	100.0
	Total	163	82.3	100.0	
Missing	System	35	17.7		
Total		198	100.0		

**Table G.2.1: How long since your business organization began:
Using the following tools in decision-making? - PB Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	4	2.0	2.1	2.1
	2-3 years	8	4.0	4.2	6.3
	3-4 years	3	1.5	1.6	7.9
	4-5 years	32	16.2	16.8	24.6

		Frequency	Percent	Valid Percent	Cumulative Percent
	>5 years	144	72.7	75.4	100.0
	Total	191	96.5	100.0	
Missing	System	7	3.5		
Total		198	100.0		

**Table G.2.2: How long since your business organization began:
Using the following tools in decision-making? - DS Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	4	2.0	2.4	2,4
	2-3 years	8	4.0	4.8	7,3
	4-5 years	38	19.2	23.0	30,3
	>5 years	115	58.1	69.7	100,0
	Total	165	83.3	100.0	
Missing	System	33	16.7		
Total		198	100.0		

**Table G.2.3: How long since your business organization began:
Using the following tools in decision-making? - CA Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	4	2.0	2.1	2.1
	2-3 years	8	4.0	4.2	6.3
	4-5 years	25	12.6	13.2	19.5
	>5 years	153	77.3	80.5	100.0
	Total	190	96.0	100.0	
Missing	System	8	4.0		
Total		198	100.0		

**Table G.2.4: How long since your business organization began:
Using the following tools in decision-making? - PE Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	13	6.6	7.0	7.0
	2-3 years	9	4.5	4.8	11.8
	3-4 years	3	1.5	1.6	13.4
	4-5 years	37	18.7	19.8	33.2
	>5 years	125	63.1	66.8	100.0
	Total	187	94.4	100.0	
Missing	System	11	5.6		

	Frequency	Percent	Valid Percent	Cumulative Percent
Total	198	100.0		

**Table G.2.5: How long since your business organization began:
Using the following tools in decision-making? - SMA Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	6	3.0	4.0	4,0
	2-3 years	11	5.6	7.3	11,3
	4-5 years	35	17.7	23.3	34,7
	>5 years	98	49.5	65.3	100,0
	Total	150	75.8	100.0	
Missing	System	48	24.2		
Total		198	100,0		

**Table G.3.1: How long since your business organization began:
Using the following tools in quality improvement programme? – PB Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	5	2.5	2.9	2.9
	2-3 years	18	9.1	10.5	13.5
	3-4 years	26	13.1	15.2	28.7
	4-5 years	31	15.7	18.1	46.8
	>5 years	91	46.0	53.2	100.0
	Total	171	86.4	100.0	
Missing	System	27	13.6		
Total		198	100.0		

**Table G.3.2: How long since your business organization began:
Using the following tools in quality improvement programme? – DS Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	5	2.5	3.6	3.6
	2-3 years	6	3.0	4.3	7.9
	3-4 years	6	3.0	4.3	12.1
	4-5 years	39	19.7	27.9	40.0
	>5 years	84	42.4	60.0	100.0
	Total	140	70.7	100.0	

		Frequency	Percent	Valid Percent	Cumulative Percent
Missing	System	58	29.3		
Total		198	100.0		

**Table G.3.3: How long since your business organization began:
Using the following tools in quality improvement programme? – CA Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	16	8.1	9.2	9.2
	2-3 years	11	5.6	6.4	15.6
	3-4 years	8	4.0	4.6	20.2
	4-5 years	35	17.7	20.2	40.5
	>5 years	103	52.0	59.5	100.0
	Total	173	87.4	100.0	
Missing	System	25	12.6		
Total		198	100.0		

**Table G.3.4: How long since your business organization began:
Using the following tools in quality improvement programme? – PE Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	15	7.6	9.1	9.1
	2-3 years	7	3.5	4.2	13.3
	3-4 years	37	18.7	22.4	35.8
	4-5 years	31	15.7	18.8	54.5
	>5 years	74	37.4	44.8	99.4
	6	1	.5	.6	100.0
	Total	165	83.3	100.0	
Missing	System	33	16.7		
Total		198	100.0		

**Table G.3.5: How long since your business organization began:
Using the following tools in quality improvement programme? – SMA Tools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 years	15	7.6	12.2	12.2
	2-3 years	13	6.6	10.6	22.8
	3-4 years	12	6.1	9.8	32.5

		Frequency	Percent	Valid Percent	Cumulative Percent
	4-5 years	29	14.6	23.6	56.1
	>5 years	54	27.3	43.9	100.0
	Total	123	62.1	100.0	
Missing	System	75	37.9		
Total		198	100.0		

Table G.1 Performance Improvement in relation with the industry average

Performance Measures	NFP - FP	Mean	SD ^a	C.V ^b (%)	Rank
12. Customer satisfaction	NFP	4.13	.690	16.70702	1
1. Sales Volume	FP	4.07	.755	18.55037	2
5. Return on investment (ROI)	FP	4.01	.803	20.02494	3
2. Growth in Sales Volume	FP	3.97	.737	18.56423	4
10. Quality – Product	NFP	3.97	.773	19.47103	5
8. Asset turnover	FP	3.95	.938	23.74684	6
14. Employee Attitudes and Morale	NFP	3.95	.742	18.78481	7
4. Growth in Market Share	FP	3.93	.777	19.77099	8
3. Market Share	FP	3.91	.807	20.63939	9
6. Net profit	FP	3.89	.815	20.95116	10
11. Inventory turnover	NFP	3.89	.796	20.46272	11
7. Profit margin	FP	3.81	.815	21.39108	12
9. Unit cost	NFP	3.69	.846	22.92683	13
13. Speed of new product introduction	NFP	3.68	.816	22.17391	14

^aSD = standard deviation, ^bC.V= coefficient of variation, FP=Financial Performance indicators, NFP=Non-Financial Performance indicators.

**Table G2: ANOVA (control variable: industry)
Variation in the appreciation of the indicators improved**

Performance Measures	F	Sig.
1. Sales Volume	4.456	.013
2. Growth in Sales Volume	6.813	.001
3. Market Share	4.864	.009
4. Growth in Market Share	6.089	.003
5. Return on investment (ROI)	4.412	.013
6. Net profit	5.653	.004
7. Profit margin	1.336	.265
8. Asset turnover	6.637	.002
9. Unit cost	3.613	.029
10. Quality – Product	8.880	.000
11. Inventory turnover	12.740	.000

Performance Measures	F	Sig.
12. Customer satisfaction	22.049	.000
13. Speed of new product introduction	.966	.383
14. Employee Attitudes and Morale	13.055	.000

Boldface : statistical significant difference at 0.05 level

Table G3: Descriptives – Performance indicators improvement by practicing the various MAP

Performance Measures	manufacturing	services	commercial	Total
1. Sales Volume	4.21	3.81	4.13	4.07
2. Growth in Sales Volume	4.00	3.67	4.13	3.97
3. Market Share	4.00	3.62	4.02	3.91
4. Growth in Market Share	3.89	3.65	4.11	3.93
5. Return on investment (ROI)	4.23	3.77	4.01	4.01
6. Net profit	4.04	3.58	3.99	3.89
7. Profit margin	3.83	3.65	3.88	3.81
8. Asset turnover	4.26	3.62	3.96	3.95
9. Unit cost	3.94	3.65	3.56	3.69
10. Quality – Product	4.32	3.73	3.91	3.97
11. Inventory turnover	4.08	3.44	4.04	3.89
12. Customer satisfaction	4.25	3.63	4.33	4.13
13. Speed of new product introduction	3.66	3.56	3.75	3.68
14. Employee Attitudes and Morale	4.19	3.54	4.05	3.95

Boldface: the higher mean

Appendix 4 – Interview Questionnaire

Interview Questions

Basic questions and philosophy are adopted from Otley (1999) adjusted and expanded accordingly to the need of this study after extensive discussions with practitioners, two major management consulting firms and one university.

Interviewees are requested to answer and comment for each question referring to reality only and on behalf of their organization and only if applicable.

General Questions

1. Why have organizations changed their control systems to incorporate some of most popular techniques?
 - 1.1 Responses to the survey showed that you changed your control system to incorporate some of the most popular practices. When did it happen and what led you to make the changes/ what problem were you seeking to solve?
 - 1.2 What is the aim of your control system?
 - 1.4 Has the aim changed over the years?
 - 1.5 Was previous used ones an issue?
 - 1.6 How have the changes worked in practice?
 - 1.7 What benefits have they produced?
 - 1.8 What problems are you still experiencing with your control system?

2. What are the main reasons that caused managers to make changes, and what have the consequences of the changes been?

3. Describe the role of most popular MAP in the modern organization.
 - 3.1 Practitioners' responses showed that some practices were the most popular MAP, is it the same for both accountants and managers?
 - 3.2 If you don't know the survey response then please answer 'What is the most popular MAP with the accountants?
 - 3.3 What is the most popular MAP with the managers? Why the difference? What role/function does this MAP perform?

4. How have they been used in practice, and what changes are being made to traditional practices?
 5. New financial performance measures, are being adopted by many organizations. Describe how do they link with currently used measures, and how are they integrated into an overall control system.
 - 5.1 How do/would they link with currently used measures, and how are/would they integrated into an overall control system?
 6. In what circumstances do they seem to be appropriate and where may they need to be amended?
 7. Describe the contextual factors (internal-external) that affect an organization's likely interest in such matters.
 8. The most popular MA tools, how organizations actually use them in practice?
 9. Do they deliver the benefits claimed for, and how might be most effectively be combined with existing control systems?
-

STRATEGY AND TECHNOLOGY

10. The type of strategy followed by your company, at least in the last three years matches one of the following:
 - a. Conservative
 - b. Entrepreneurial
 - c. Prospectors – Analysers
 - d. Defenders
 - e. Build – Hold
 - f. Harvest
 - g. Product differentiation
 - h. Cost leadership

11. The type of technology (generic) followed by your company, at least in the last three years matches one of the following:
- a. Standardized - automated processes
 - b. Task uncertainty
 - c. Interdependence
12. The type of technology (contemporary) followed by your company, at least in the last three years matches one of the following:
- a. Just in Time (JIT)
 - b. Total Quality Management (TQM)
 - c. Materials Requirement Planning (MRPI) and Manufacturing Resource Planning (MRPII)
 - d. Flexible Manufacturing Systems (FMS)
 - d1. Computer Assisted Design (CAD)
 - d2. Computer Assisted Manufacturing (CAM)

(Explanation of terms in the Glossary at the end of this questionnaire and at the main Questionnaire, Appendix 2).

MOST POPULAR ISSUES

Administration of the company

13. Describe the major reasons for MAP development in your organization.
14. What role does the management accountant play into your organization?
15. What is your organization's administration style?

Costing methods

16. How the costing methods are practiced in your firm?
17. Are you satisfied with the costing provisions of the Hellenic General Accounting Plan?
18. Do you implement or do you intent to imply any recently developed costing methods, such as ABC? If you implement it, are you satisfied?
19. What problems have you faced when implementing the respective methods?

Planning methods

20. Describe with detail about: Long and short term planning, budgeting, budget period, budgeting teams, revisions, reporting issues.
21. Is budgeting a product of collective work or is prepared from the top management team

and is just a document to follow?

22. How is the budget implemented in your firm and for what purpose?

Performance evaluation

23. Does your company implement standard costing?

24. When you evaluate performance how do you deal with variances between actual and budgeted figures?

25. In relation to actual and budget results, are there any consequences on budget managers – divisional heads in your salaries and careers?

STRATEGY – TECHNOLOGY // GLOSSARY

Strategies	MCS Characteristics - Literature propositions
Conservative	Formal, traditional MCS focused on cost control, specific operating goals and budgets and rigid budget controls.
Entrepreneurial	Formal and traditional MCS and organic decision making and communications.
Prospectors Analysers	-Interactive budgeting, competitor focused accounting, competitor cost assessment, competitive position monitoring, competitor assessment based on published fin. statements, strategic costing, strategic pricing.
Defenders	Formal, traditional MCS focused on cost control, specific operating goals and budgets and rigid budget controls.
Build - Hold	Subjective and long term controls, competitor focused accounting, competitor cost assessment, competitive position monitoring, competitor assessment based on published fin. Statements, strategic costing, strategic pricing.
Harvest	Low specialization, difficulty in measuring outcomes.
Product differentiation	Broad scope MCS for planning purposes, and customisation strategies are associated with aggregated, integrated and timely MCS for operational decisions.
Cost leadership	Formal, traditional MCS focused on performance measurement by cost control, specific operating goals and budgets and rigid budget controls.

Generic Technologies	MCS Characteristics - Literature propositions
Standardized - automated processes	More standardized technologies - more traditional formal MCS - highly developed process controls - high budget use - high budgetary control - Less budgetary slack.
	Less standardized technologies - less traditional formal MCS - less developed process controls - less budget use - less budgetary control - More budgetary slack.
Task uncertainty	More participation in budgeting, more personal controls, clan controls, and usefulness of broad scope MCS.

Generic Technologies	MCS Characteristics - Literature propositions
	Less reliance on standard operating procedures, programs and plans, accounting performance measures, behaviour controls.
Interdependence	High level: More informal control, fewer statistical operating procedures, more statistical planning reports and informal coordination, less emphasis on budgets and more frequent interactions between subordinates and superiors, greater usefulness of aggregated and integrated MCS.

Appendix 5 – Questionnaire Survey - cover letter

<Address list>

Kavala, 11th September 2006

Dear Sirs,

The attached questionnaire refers to research performed in Greece for the existing management control systems as well as for the management accounting practices implemented by the Greek companies. The purpose of this investigation is to present the degree and benefits gained by implementing these practices and their effects on performance. Also to underline which are the ideal integrations of practices in these systems.

I understand that some of this information may be confidential but I assure you that it will be used on the aggregate only for statistical purposes and in the total sample of firms.

Kindly consider that your answers will remain strictly confidential.

The questionnaire includes most of the traditional and contemporary methods of management accounting as well as other modern management practices therefore it is a first class opportunity for you to consider and compare the respective methods implemented by your company.

The questionnaire should be completed by senior company staff of finance department and preferably by the financial manager, financial controller or senior management accountant.

When you complete the questionnaire kindly post it with the prepaid envelope at the address already written for you and in the maximum of fifteen days after you receive this letter.

Thank you in advance for your cooperation.

Your sincerely,

G. Angelakis

Phd Candidate – University of Derby, England

Lecturer (Part Time), Department of Accounting, TEI of Kavala – Greece.

