

# MANAGEMENT CONTROL SYSTEMS AND STRATEGY: WHAT'S BEEN HAPPENING?

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## Abstract

The point of departure of this paper is the agenda for further research advanced by Langfield-Smith (1997) in her critique of studies investigating the relationship between management control systems (MCS) and strategy. In considering the ways in which subsequent MCS-strategy research has advanced our knowledge according to Langfield-Smith's initial observations, the present paper proposes a revised agenda for continuing research in this area.

It is contended that current knowledge of the relationship between MCS and strategy can be encapsulated within three independent but mutually related propositions. First, the extent of influence that MCS have on both strategy formulation and strategy implementation varies depending on the way in which MCS are designed as well as the way in which MCS are used; second, the design of MCS is dependent upon the particular strategic orientation adopted by the organisation; and third, there is a match between particular strategic orientations and particular MCS designs which enhances performance. In order to extend our *understanding* as distinct from our *knowledge* of this complex relationship beyond these propositions, it is suggested that avenues for further research include; developing explanatory frameworks which incorporate alternate strategic typologies previously used; adopting a broader approach that has previously been proposed in operationalising the key constructs of MCS and strategy, examining MCS-strategy relationships using non-linear and non-recursive models, adopting a longitudinal approach to studying the interaction of MCS and strategy, so as to evaluate the implications of appreciable changes in both strategy or the use or design of MCS over time, and explicitly exploring the interface and inter-relationship between the content and process of strategy, and the design and use of MCS.

*Keywords:* MCS; Strategy; Performance; Contingency Theory; Langfield-Smith.  
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## 1. Introduction

In spite of the growing interest in the relationship between management control systems (MCS) and strategy, there had, by the mid-1990's, been little research that investigated this relationship (Langfield-Smith, 1997). This was evidenced by the relatively recent dates ascribed to published papers (Khandwalla, 1972; Miller & Friesen, 1982; Merchant, 1985; Simons, 1987; Govindarajan, 1988; Govindarajan & Fisher, 1990; Dent, 1990; Abernethy & Stoelwinder, 1991; Simons, 1990, 1991, 1994; Abernethy & Lillis, 1995; Abernethy & Stoelwinder, 1995; Otley, Broadbent, & Berry, 1995; Langfield-Smith, 1995; Fisher, 1995).

The landmark paper by Langfield-Smith (1997) consolidated and provided an "audit" or "snapshot" of our knowledge to this time through a review and critique of nine empirical studies undertaken up to 1992 and seven case studies undertaken up to 1995<sup>1</sup>. In distinguishing between empirically-based and case-based research, Langfield-Smith (1997) observed that much of the empirical research in this area followed a contingency approach and involved a search for systematic relationships between specific elements of the MCS and the particular strategy of the organisation (Simons, 1987; Merchant, 1985; Govindarajan & Gupta, 1985). Case studies, on the other hand, tended to investigate the role of the MCS in supporting and influencing the strategic processes within organisations. This distinction between empirical research and case studies reflects a different focus of each type of research and by implication; the nature and extent to which findings of these differing approaches to research respectively advanced our knowledge in this area in different ways. On the basis of this review and critique, a summary of the state of extant knowledge is represented in *Table 1*.

**\*\*\* INSERT TABLE 1 HERE \*\***

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<sup>1</sup> The empirical studies reviewed by Langfield-Smith (1997) were: Khandwalla, (1972); Miller & Friesen, (1982); Merchant, (1985); Govindarajan & Gupta, (1985); Simons, (1987); Govindarajan, (1988); Govindarajan & Fisher, (1990); Daniel & Reitsperger, (1991); and, Daniel & Reitsperger, (1992). The case studies reviewed were: Archer & Otley, (1991); Roberts, (1990); Knight & Willmott, (1993); Simons, (1990, 1991, 1994, 1995).

**TABLE 1. Summary of extant knowledge of the MCS-Strategy relationship (Langfield-Smith (1997))**

**SUMMARY OF EXTANT KNOWLEDGE (Langfield-Smith (1997))**

1. *Research evidence about the relationship between MCS and strategy covers a broad range of perspectives and methods.*
2. *MCS has the propensity to support the strategy of the business to lead to competitive advantage and superior performance (Dent, 1990; Simons, 1987a, 1990).*
3. *There is evidence that high organizational performance may result from a matching of an organization's environment, strategy and internal structures and systems (Govindarajan & Gupta, 1985; Govindarajan, 1988).*
4. *Empirical research has focused primarily on formal controls, which are of a feedback nature, and often financially oriented. This traditional orientation towards accounting controls and accounting information, which has dominated much of the MCS research, is not sufficiently broad to capture more modern approaches to effective control (Emmanuel et al., 1990).*
5. *Informal controls are also important aspects of MCS and the effectiveness of formal controls may be dependent on the nature of the informal controls that are also in place (Otley, 1980).*
6. *In contingency research that studies the relationship between MCS and strategy, numerous taxonomies have been employed by researchers, the most common being, entrepreneurial-conservative (Miller & Friesen, 1982); prospectors-analysers-defenders-reactors ( Miles & Snow, 1978); build-hold-harvest ( Gupta & Govindarajan, 1984); and product differentiation-cost leadership (Porter, 1980). When the detailed descriptions of these typologies and variables are reviewed common characteristics, are revealed. Evidence from the literature reveals two contrasting pictures emerge of the nature and role of control systems in organisations adopting different strategies. On the one hand, strategies characterised by a conservative orientation, defenders, harvest and cost leadership are best served by centralized control systems, specialized and formalized work, simple co-ordination mechanisms and attention directing to problem. Strategies characterized by an entrepreneurial orientation, prospectors, build and product differentiation are linked to lack of standardized procedures, decentralized and results oriented evaluation, flexible structures and processes, complex co-ordination of overlapping project teams, and attention directing to curb excess innovation. On the other hand however, the findings of Simons (1987), conflict with other research. First, Simons (1987) found high performing prospectors placed importance on controls, such as forecasting data, tight budget goals and the careful monitoring of outputs, but gave little attention to cost control. Also, large high performing prospectors emphasized frequent reporting and the use of uniform control systems, which are modified when necessary. Simons (1987) also found that control systems were used less intensively by defenders, particularly large defenders, compared with*

prospectors. In large defenders, high financial performance was negatively correlated with tight budget goals and the use of output monitoring. It was only in small defenders that tight budget goals were positively correlated with high performance.

7. *Consequently, contingency – based empirical studies give us only limited knowledge about the forms of control systems that suit particular types of strategies.*
8. *Several contingency studies have focused on the relationship between strategy and performance evaluation and reward systems. In particular, the choice of subjective or objective approaches to rewarding performance has been researched. Thus, the research findings are consistent: objective performance evaluation and reward systems have been found to support defender-like strategies. In firms that follow prospector, differentiator and build strategies the evidence is also fairly consistent. Porter (1980) argued that subjective performance evaluation was appropriate for differentiators. This was supported by Govindarajan and Gupta (1985) for organizations following a build mission and by Gupta (1987) for firms following a build and differentiation strategy.*
9. *The nature of a specific strategy can affect the choice of control system.*
10. *The perceptions of managers' are of crucial importance in affecting the nature of strategic change, or the orientation of the MCS. Managers' perceptions can be considered a mediating variable in the relationship between MCS and strategy (Archer & Otley, 1991). The interdependence of formal and informal controls and strategic processes, and the role of MCS in either supporting or impeding strategic change is relatively well-established. In particular, Simons (1990, 1991, 1994, 1995) provide a stream of case investigations that contribute towards a model of the dynamic relationship between MCS and strategic change, which is moderated by the ways that managers direct attention to controls.*

Langfield-Smith (1997) also concluded that empirical research that had been conducted had been found to be “fragmentary, providing limited knowledge about the forms of MCS that suit particular strategies and in fact, were incompatible and sometimes conflicting”, (Langfield-Smith, 1997, p.228). Case study research, although contributing valuable insights related to the formulation and implementation of strategy, provide a limited indication of which types of controls fit particular strategies (Langfield-Smith, 1997, p.224).

In summary, despite progressively increasing interest in this area, the picture presented in the literature was found to be incomplete. As at the mid-1990's, the MCS-strategy relationship remained largely unexplored, little documented or understood. Although gradually advancing, our understanding of this particular field of knowledge was still relatively embryonic. Specifically, the nature and extent to which MCS and strategy interacted, the manner in which MCS might be implicated in the strategic process, the superficiality of research contexts, and untested assumptions upon which extant knowledge was predicated, were limitations identified by Langfield-Smith (1997).

Langfield-Smith's review took place at an early stage in the 'life cycle' of MCS – strategy research. Subsequent to 1997 there has been an appreciable growth in published studies that investigate the interrelationship between MCS and strategy. Interestingly, much of this published research has either by design or discovery, directly addressed the opportunities for further research identified by Langfield-Smith (1997). These areas were: the role MCS can play to bring intended strategies to realization; the extent to which MCS can minimize the disruption caused by strategic change over time; the nature and extent to which the role and composition of MCS change as a company matures; aspects of the MCS - Strategy relationship which focus on operational as well as senior management.; the significance of resource sharing between SBUs for the design of MCS under different strategies, particularly concerning the reliance on either behaviour or outcome controls; how performance measures and reward systems may be used under particular operational strategies, and to support new manufacturing philosophies. In retrospect, it is quite clear that the work of Langfield-Smith (1997) has, in effect, defined the MCS-strategy research agenda over the past decade, and it is perhaps timely therefore, to revisit these research priorities in order to examine how our knowledge has progressed in this time.

In focusing on key areas of empirical research that investigate strategy and MCS, Langfield-Smith (2005) provides another particularly incisive and insightful appraisal of the areas in which we are still developing our knowledge. This appraisal however, does not evaluate the particular research agenda she advocated in 1997. Rather, it is based upon six broad, content-specific themes that have emerged as central over the past decade. These themes include: the relationship between performance measures and reward systems and business strategy; capital investment processes and the initiation of strategic investment projects; interactive controls and strategic change; operational strategies and

control systems; the design and operation of MCS in interfirm relationships; and the strategic styles of corporate HQ and the MCS of business units. The focus of future research consequently postulated by Langfield-Smith (2005) is therefore grounded in, and extends these particular themes<sup>2</sup> to include: a consideration of how multiple objectives of MCS can be achieved; how strategic capital investments, practices and processes can be developed to encourage strategic thinking; the design of control systems in inter-organisational relationships; and, how MCS can be designed and used to promote improved strategic performance and control through the creation of strategic knowledge and thinking.

In contrast, rather than identifying and evaluating specific themes, the frame of reference adopted in the present paper evaluates progress, primarily in terms of the methodological and, to a lesser extent, theoretical observations made by Langfield-Smith (1997). Accordingly, although not directly engaging with the themes discussed by Langfield-Smith (2005), this paper independently complements the observations of Langfield-Smith (2005), and contributes to the management accounting literature in two ways. First; in critically evaluating MCS - strategy research as it has developed according to the research agenda originally advocated by Langfield-Smith (1997), it seeks to provide a degree of clarification about what we know as well as what we do not know about this relationship. Second; on the basis of this additional evidence, to propose revised directions for further approaches to research in the area.

In exploring both empirical as well as case-based research published in a broad selection of accounting as well as management journals<sup>3</sup>, this review is selective. That is, we do not purport to provide a comprehensive examination of all research that has been undertaken in the area since 1997. Twenty one articles reviewed in this paper, are drawn from twenty seven leading journals. In our view, these particular articles provide a large and representative sample of the theory-consistent empirical and case-based literature in management accounting/strategy research, and serve to identify the contributions made by scholars in response to Langfield-Smith's call to further research.

This remainder of this paper is structured as follows. First, studies undertaken subsequent to 1997, which have responded to the particular research priorities

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<sup>2</sup> For a more detailed discussion of these six themes, see: Langfield-Smith, K. (2005) "What do we know about Management Control Systems and Strategy" In Chapman, C.S. (ed) *Controlling Strategy: Management, Accounting, and Performance Measurement*, Oxford University Press, Oxford.

<sup>3</sup> The journals include; Accounting, Organizations and Society, Accounting and Finance, Accounting, Auditing and Accountability Journal, Accounting Horizons, Behavioral Research in Accounting, British Accounting Review, Contemporary Accounting Research, Critical Perspectives on Accounting, Journal of Accounting and Economics, Journal of Accounting Research, Journal of Business Research, Journal of Management Accounting Research, Management Accounting Research, and The Accounting Review. In addition management journals reviewed include: Academy of Management Journal, Academy of Management Review; Administration & Society; Administrative Science Quarterly; Asia Pacific Journal of Management; British Journal of Management; Harvard Business Review; Long Range Planning; Management Science; Nonprofit Management & Leadership; Nonprofit and Voluntary Sector Quarterly, Scandinavian Journal of Business Research, and Singapore Management Review.

suggested by Langfield-Smith, are critiqued in order to ascertain their broad contribution to extant knowledge. The following section advocates the application of two separate evaluative frameworks in order to identify linkages between the studies, and also potential impediments or obstacles which may have limited both the comparability of studies, as well as the generalisability of findings. The first provided by Luft & Shields (2003), and the second, provided by Keating (1995), are used to evaluate empirical research, and case studies respectively. Section 4 of this paper considers the implications of research findings and approaches as a consequence of the studies reviewed in terms of the two analytical frameworks employed. Section 5 provides a summary of our knowledge as well as our understanding of the relationship contributed by the studies reviewed in this paper, and, based on the gaps identified, proposes revised directions for future research in order to advance our understanding of this area. Finally, a reflection and concluding comments are presented.

## **2. Summary of research evidence**

A synopsis of twenty one MCS – strategy studies that have been undertaken since 1997 is presented in *Table 1*. These studies form the basis of this review, and are chronologically ordered according to the six research priorities advanced by Langfield-Smith (1997).

**\*\*\* INSERT TABLE 2 HERE \*\*\***

**TABLE 2. Research design of empirical and case studies examining MCS and strategy**

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
The role that MCS can play to bring intended strategies to realisation.	<b>Chung (1996)<sup>4</sup></b>  Examination of the relationship between strategy and MCS in Singapore-based firms	49 medium to large private sector Singaporean firms operating in the electrical and electronics industry.	Effectiveness	Tightness of budget control; Participation in planning; Control system changeability; External scanning and forecast data.	Prospectors and Defenders (Snow & Hrebiniak, 1980; Hambrick, 1984; Simons, 1987).	Seven-point Likert scale for questions relating to various MCS attributes.	Firms place different emphases on MCS attributes, according to the type of strategic typology adopted, thereby providing support for the findings of Simons (1987).
	<b>Bouwens &amp; Abernethy (2000)</b>  Examination of the relation between customization, and the use & design of MAS, and exploration of why this occurs.	170 middle level managers of SBU's of large (>150 employees) private sector organisations operating in the Netherlands.	MAS use	Customization (manufacturing flexibility)  Interdependence between departments	Customization based on Pugh, Hickson, Hinings & Turner (1969)	25 questions, drawn from existing instruments, ranked on a five-point Likert scale.	Customization, as a strategic priority, does not have a direct relation with MAS but rather operates via the interdependencies created when such a strategic priority is pursued.
	<b>Shih &amp; Yong (2001)</b>  Investigation of the effect that seven MCS features have on firms pursuing a particular strategy.	49 large Singaporean firms listed on the Singapore Stock Exchange.	Strategy	Financial results uncertainty; extent that decision making is geared toward the long term; degree to which control is decentralized; tightness of budgetary control; extent of use of non-financial criteria  and subjective assessment are used in performance evaluation.	Prospectors (Based on Miles & Snow, 1978)	23 questions, testing six hypotheses in total and examined first-order as well as second-order relations among the variables.	Prospector-like firms tend to adopt a long-term perspective in decision making and practice decentralized control to a greater extent than other firms. Also, the more intensely a firm pursues the Prospector-like strategy, the less uncertain it is about its financial results, and that the tightness of budgetary control is negatively correlated with financial results uncertainty.

<sup>4</sup> This study predates the review and critique provided by Langfield-Smith (1997), however its inclusion is based on its date of publication which suggests an analysis of it may not have been included in Langfield-Smith's work.

TABLE 2. Contd.

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
	<p><b>Nilsson (2002)</b> Examination of the Corporate strategy of the acquiring firm and the business strategy of the acquired firm as the two major driving forces influencing the design and use of MCS.</p>	<p>Case study of four acquisitions of Swedish organisations by Swedish organisations. Involving 62 interviews with 36 persons representing Corporate management, Business-Unit management, and other employees. Also included a questionnaire.</p>	-	-	Corporate and Business strategy classified on the basis of Rumelt (1974) and Porter (1987).	<p>Strategy measured using instrument based on Govindarajan (1988).  MCS developed by the author.</p>	<p>A potential fit in the design &amp; use of MCS when: (1) the acquiring company followed a portfolio-management strategy and the acquired company a differentiation strategy; and (2) the acquiring company followed an activity-sharing strategy and the acquired company, a differentiation strategy.</p>
	<p><b>Baines &amp; Langfield-Smith (2003)</b> Investigation of whether changes in the organizational environment have led to changes in the organizations' strategy, organizational design, advanced manufacturing technology and management accounting practices, &amp; how these changes in turn, influence organizational performance.</p>	<p>General managers of 700 business units of larger firms, or companies in their own right in the manufacturing sector. Randomly selected from the Kompass Australia (1999) database</p>	Organisational Performance	<p>Changes in Competitive Environment; Changes in Strategy; Changes in Advanced Management Accounting Practices; Changes in Organisational Design; Changes in Technology; Changes in Non-Financial management accounting information.</p>	Extent to which each business unit had changed its strategic emphasis over a range of differentiation aspects, during the past 3 years.	<p>Self-administered questionnaire. Nine items measuring aspects of differentiation, derived from instruments used by Chenhall and Langfield-Smith (1998b), Parthasarthy &amp; Sethi (1993) and Perera et al. (1997). Each element was rated on an 11-point Likert scale</p>	<p>An increasingly competitive environment has resulted in an increased focus on differentiation strategies. This, in turn, has influenced changes in organizational design, advanced manufacturing technology and advanced management accounting practices. These three changes have led to a greater reliance on non-financial accounting information which has led to improved organizational performance.</p>

**TABLE 2. Contd.**

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	<p><b>Bisbe &amp; Otley (2004)</b></p> <p>Examines the relationships among variables embedded in Simons' framework of levers of control, explicitly distinguishing between the different types of effects involved and testing their significance.</p>	<p>58 CEO's of medium sized, mature manufacturing Spanish firms.</p> <p>(Medium sized firms defined as those with an annual turnover of between €18 and 180 million and between 200 and 2000 employees. Mature firms were defined as those founded at least ten years before the survey was administered.</p>	<p>Organisational Performance.</p>	<p>Interactive use of MCS; Innovation.</p>	-	<p>Interactive use of MCS; Measured by a multi-scale instrument based on the instruments suggested by Abernethy and Brownell (1999) and Davila (2000). Performance; measured as the degree of goal attainment along several dimensions, both financial and non-financial, using an adaptation of Govindarajan (1984)</p>	<p>No support for the hypothesis that an interactive use of MCS favours innovation; however, this may be the case only in low-innovating firms, while the effect is in the opposite direction in high-innovating firms. No evidence is found either in favour of an indirect effect of the interactive use of MCS on performance acting through innovation.</p> <p>The proposition that the impact of innovation on performance is moderated by the style of use of MCS is supported, with results indicating that the explanatory power of a model that regresses performance on innovation is significantly enhanced by the inclusion of this moderating effect.</p>

**TABLE 2. Contd.**

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
	<p><b>Malina &amp; Selto (2004)</b></p> <p>Addresses four research questions: (1) Are measure attributes important considerations for performance measure choice?; (2) Does the importance of attributes differ according to firm strategy?; (3) Does the importance of attributes for design and use differ according to firm strategy?; (4) Does a company trade-off some individual attributes for others?</p>	<p>Case Study of a U.S. FORTUNE 500 equipment manufacturer.</p>	-	-	-		<p>Measure attributes are important considerations for choice and change of performance measures, design attributes are more important than use attributes, the importance of attributes does not appear to differ according to strategy, and some individual attributes are traded-off for other attributes.</p>

TABLE 2. Contd.

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
Examining, in greater detail, the significance of resource sharing between SBUs for the design of MCS under different strategies, particularly concerning the reliance on either behaviour or outcome controls.	<p><b>Auzair &amp; Langfield-Smith (2005)</b></p> <p>Investigation of the influence of several contingent variables on the design of MCS in service organizations.</p>	155 Australian service organisations, covering a range of different industries.	Type of MCS	Service process type; Cost leadership strategy; Differentiation strategy; Organization life cycle stages.	Cost leadership and differentiation measured as separate scales, recognising that a firm may pursue both of these strategies in varying degrees. Based on Chenhall and Langfield-Smith (1998b) and Kumar and Subramaniam (1997).	Five dimensions of MCS consisted of a series of semantic differential 1-7 point Likert scales. Dimensions adapted from: prior survey instruments: (Robbins & Barnwell, 1989; Simons, 1987; Govindarajan & Fisher, 1990; Ouchi, 1977).	(1) mass service, mature and cost leader firms place a greater emphasis on more bureaucratic forms of MCS, compared to professional service, growth and differentiator firms, and (2) service process type, organizational life cycle stage, and strategies have a significant influence on MCS design.
	<p><b>Henri (2005)</b></p> <p>Examination from a resource-based perspective, of the relationships between the use of MCS, organisational capabilities and organisational performance. Particular focus on the diagnostic and interactive uses performance measurement systems (PMS), and four capabilities leading to strategic choices.</p>	<p>383 Canadian manufacturing firms listed in Scott's 2002 database with primary and secondary SIC codes in the range of 21-39.</p> <p>These firms were either independent companies or SBUs.</p>	Organisational Performance	Market orientation; Entrepreneurship; Innovativeness; and organizational learning.	Adoption of a RBV perspective – consequently, strategy operationalised in terms of four internal capabilities.	Interactive and diagnostic uses of PMS (Vandenbosch 1999); market orientation (Narver & Slater, 1990); entrepreneurship (Naman & Slevin, 1993); organizational learning Hult (19980; Innovativeness (Burke, 1989).	Results provide some evidence supporting the influence of the balanced use of PMS in a diagnostic and interactive fashion on capabilities and performance.

TABLE 2. Contd.

Research Priority	Research Study	Sample	Dependent variable	Independent Variables	Operationalisation of Strategy	Source of measures	Findings
	<p><b>Chung et al (2000)</b></p> <p>Examination of the control issues related to three major flows among MNC subsidiaries: knowledge flows, product flows and capital flows. Also investigates the relationship between the strategic management style of headquarters and the control approaches employed.</p>	<p>56 MNC subsidiaries operating in the manufacturing and wholesale sectors in Australia, selected from the BRW Top 1,000 corporations operating in Australia in 1996.</p>	<p>Behaviour control; Output control; Socialisation control</p>	<p>Knowledge flows; Product flows; Capital flows.</p>	<p>-</p>	<p>Behaviour control measure developed by the authors based on the number of parent company nationals in key management positions in the subsidiary.</p> <p>Output control congruent with Egelhoff (1988).</p> <p>Socialisation control is measured by the efforts made by headquarters in developing a strong organisational culture such that all subsidiaries know and share the main goals of the firm (Martinez &amp; Jarillo, 1991; Ghoshal &amp; Nohria, 1989).</p>	<p>The results show the dominance of output control, even in situations where researchers have argued that they should not be relied upon. The study also found that as knowledge flow increases, reliance on financial control decreases and reliance on socialisation control increases.</p> <p>Consistent with other studies, the dominant management style is the strategic control style, while the least popular is the financial control style.</p>

**TABLE 2. Contd.**

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
	<p><b>Nilsson (2000)</b></p> <p>Exploration of the relationships between parenting style, the design and use of MCS, and value creation,</p>	<p>Four Swedish corporate groups.</p>	-	-	-	-	<p>These case studies show that a successful parenting style is characterized by established principles for balancing corporate management's need for co-ordinated control systems against the needs of the business units for situation-specific control systems. Findings suggest that these principles vary with the type of parenting style.</p>

**TABLE 2. Contd.**

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
Exploration of the nature and extent to which the role and composition of MCS change as a company matures.	<p><b>Moore &amp; Yuen (2001)</b></p> <p>Determination of whether MAS differ across stages of organisational life-cycle, and if there is a pattern in MAS formality.</p>	<p>49 organisations in the Australian clothing and footwear industry. Randomly selected from Yellow pages of the relevant telephone directory.</p>	<p>MAS (Khandwalla, 1972; Chenhall &amp; Morris, 1986).</p>	<p>Strategy; Structure; Leadership; Decision-Making styles, Organisational performance.</p>	<p>Based on the build, hold, harvest and divest classification of strategy Gupta &amp; Govindarajan (1984).</p>	<p>Organisational life-cycle variables (Miller &amp; Friesen, 1983, 1984; Hopwood, 1973). Measured on 7-point Likert scale.</p>	<p>Results indicated that MAS are able to facilitate firms pursuing their respective strategies, while exercising necessary controls as required at different life-cycle stages.</p>
	<p><b>Davila (2005)</b></p> <p>Exploratory study focusing on those MCS associated with human resource management in high-technology firms.</p>	<p>95 small, young, technology-oriented firms in California's Silicon Valley.</p> <p>Gathered from: Rich's Everyday Sales Prospecting Guide, Technology Resource Guide to Greater Silicon Valley, and Silicon Valley Business Press.</p>	<p>MCS (a latent variable measured by Personnel control, Action control, and Result control).</p>	<p>Size; Venture Capital; Age; Tenure of CEO.</p>	<p>-</p>	<p>MCS (Merchant, 1985, 1998); Measurement of independent variables not specifically reported.</p>	<p>Several variables as drivers of the emergence of MCS including the size of the organization, its age, the replacement of the founder as CEO, and the existence of outside investors identified.</p> <p>Also provides initial results on how the emergence of various types of MCS depends on which systems the organization has already adopted.</p>

**TABLE 2. Contd.**

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
How performance measures and reward systems may be used under particular operational strategies, and to support new manufacturing philosophies.	<b>Chenhall &amp; Langfield-Smith, (1998)</b>	Investigation of the way in which management accounting practices combine with management techniques under various strategic priorities, to enhance performance. 78 manufacturing firms selected from Business Review Weekly list of Australia's largest companies	Organisational Performance	Strategic priorities; Management techniques; Management Accounting practices.	Customer Service; Low Price; Differentiation. Porter (1980).	Management techniques (Miller, DeMayer & Nakane, 1992); Management Accounting Practices (Joyce & Blayney, 1990; Innes & Mitchell, 1995); Organisational Performance (Govindarajan, 1988; Govindarajan & Fisher 1990).	Confirmed that a range of management accounting practices and management techniques combine to enhance performance under different strategic priorities.
	<b>Chenhall &amp; Langfield-Smith, (2003)</b>  Examines the extent to which a manufacturing company used performance measurement and a gain-sharing reward system to achieve strategic change over a 15-year period.	Commonwealth Industrial Gases– Gas Cylinders, a manufacturing company located in Sydney, Australia.	-	-	-	-	-

TABLE 2. Contd.

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
Aspects of MCS - Strategy relationship which: focus on operational as well as senior management.	<b>Nilsson &amp; Rapp (1999)</b>  Two-year investigation of how MCS are designed and used at senior management level to implement a differentiation strategy, and how the MCS are used for strategic management at the operational level.	Scandinavian tool making firm, Sandvik Bahco	-	-	-	-	The borderline between the MCS at the two organisational levels is beginning to dissolve. MCS is instrumental in both the formulation as well as the implementation of strategy.
	<b>Marginson (1999)</b>  Two year longitudinal exploration of the contingent variables which appear to affect the design and use of MCS.	UK telecommunication s organisation, Telco.	-	-	-	-	Managers' strategy-related efforts are influenced more by informal rather than formal MCS. Apparent lack of significant hierarchical distinction in the role played by managers in strategy formulation.
	<b>Marginson (2002)</b>  30-month longitudinal examination of the nature and extent of the relationship between the MCS and strategy process at middle and lower management levels of UK telecommunications organisation, Telco.	UK telecommunication s organisation, Telco.	-	-	-	-	Confirmed the growing use of a range of MCS to control the strategy process. Managerial perceptions are a crucial determinant in how MCS support strategy formulation and implementation.

TABLE 2. Contd

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
Whether MCS can minimise the disruption caused by strategic change over time.	<p><b>Abernethy &amp; Brownell (1999)</b></p> <p>Exploration of how top management in organizations undergoing strategic re-orientation use MACS.</p>	<p>Chief Executive Officers in 63 large (i.e. greater than 200 beds) Australian public hospitals, identified in the Hospital and Health Services Year Book (1994).</p>	<p>Organisational Performance</p>	<p>Strategic Change; Style of budget use.</p>	<p>Strategic change is defined as the extent to which a firm is moving along the defender/prospecter continuum (Miles &amp; Snow, 1978); Shortell et al. 1990).</p>	<p>Multi-dimensional Performance, measured using an instrument purposely developed by the authors. Included the six dimensions measured on a seven-point anchored Likert-type scale: Comparative costs with other hospitals; Ability to win resources; Reputation of medical programs; Undergraduate and graduate medical/health professional teaching; Research; Quality of care.</p>	<p>An interactive style of budget use can mitigate the disruptive performance effects of the strategic change process.</p>
	<p><b>Kober, Ng &amp; Paul (2003)</b></p> <p>Four and a half year (retrospective) longitudinal study Investigating the fit between MCS and strategy over time to appraise the nature and extent of change in use of MCS with a given change in strategy.</p>	<p>Public sector pathology services provider operating in Western Australia. The manner in which MCS are used rather than the type of MCS designed which is important in the implementation of strategy.</p>	-	-	-	-	<p>As the strategy of the organisation changes, so too does the manner in which MCS are used.</p>

TABLE 2. Contd

<b>Research Priority</b>	<b>Research Study</b>	<b>Sample</b>	<b>Dependent variable</b>	<b>Independent Variables</b>	<b>Operationalisation of Strategy</b>	<b>Source of measures</b>	<b>Findings</b>
	<p><b>Granlund &amp; Taipaleenmaki (2005)</b></p> <p>Analysis of the current practices of management control in a number of new economy firms (NEF's).</p>	<p>9 NEF's including businesses targeting fast growth or already fast-growing firms that operate in information and communications technology businesses and biotech (life sciences) industry.</p>	-	-	-	-	<p>Very limited resources are allocated to financial control activities.</p> <p>Highly preferred tasks form the basis of management control in NEF's and mainly include rolling budgeting and reporting activities.</p> <p>Little attention is paid to performance measurement, strategic planning, and in some cases, even internal financial analysis.</p> <p>The future-orientation of MCS, especially focused on the short-term, is heavily dominant especially in the early life cycle stages of NEF's. Certain evolutionary development trends of MAS in the studied NEF's were observed. One such important observation was that MAS change is not only an outcome of certain factors, but it may also affect those factors, e.g. the life cycle stage of a company.</p>

An analysis of the studies outlined in *Table 2* indicates that inroads into the agenda proposed by Langfield-Smith (1997) have been made over the past decade. These inroads can be briefly summarised as follows.

### *2.1 The role MCS can play to bring intended strategies to realisation*

Both Chung (1996) and Shih & Yong (2001) provide support for the argument advanced by Simons (1987), that MCS are instrumental in strategy implementation. Shih & Yong (2001) however, extend this argument by the inclusion of informal MCS attributes in their operationalisation of the MCS construct. In finding that that customization, as a strategic priority, does not have a direct relation with MAS but rather operates via the interdependencies created when such a strategic priority is pursued, Bouwens and Abernethy (2000) suggest that it does not suffice to simply investigate the strategy-MAS link. Rather, it is also necessary to take into account what are the other consequences of strategic choice. The findings of this study provide some understanding as to "why" we might observe a relation between strategy and MAS in that it proposes interdependencies are instrumental in the emergence of this relationship. In considering the design and use of MCS and the implications of fit in the context of a takeover, Nilsson (2002) illustrates the importance of the corporate strategy of the acquirer and the business strategy of the acquired company. In so doing, the role of MCS in both strategy formulation as well as strategy implementation is underlined. Baines & Langfield-Smith (2003), also provide evidence to indicate that not only does a change in strategy influence a change in aspects of MCS design, but also, that this results in enhanced performance. Explicitly considering MCS use as distinct from MCS design, Bisbe & Otley (2004) find that the effect of a particular type of strategy (innovation) on performance is moderated by an interactive use of MCS, lending support to the claim that MCS has a role, albeit indirect in this instance, in the implementation of strategy. Malina & Selto (2004) however, find that neither the use nor the design of one aspect of MCS (performance measures) appear to be predisposed towards a particular type of strategy. Although inconsistent with expectations based on previous contingency research, the authors identify the level of analysis, means by which strategy is classified, and factors relating to organisational structure as reasons for this apparent contradiction.

### *2.2 The significance of resource sharing between SBUs for the design of MCS under different strategies*

The work of Auzair & Langfield-Smith (2005), and Henri (2005) has resulted in an appreciable advance in the way in which we have traditionally viewed the MCS - strategy relationship. The former through their operationalisation of informal MCS, as well as a consideration of the MCS – strategy relationship in a service industry; the latter through the introduction of the RBV frame of reference in a consideration of this relationship. The importance of strategic control, socialization controls, behaviour controls, financial controls and output controls was identified by Chung, Gibbons & Schoch (2000), as well as Nilsson (2000) in multi-national subsidiaries and Swedish corporate groups respectively.

### *2.3 The nature and extent to which the role and composition of MCS change as a company matures*

Insights are provided by Moores & Yuen (2001) who underline the potentially dynamic role of MCS over stages in the organisational life-cycle. Davila (2005) too makes an important contribution to this particular research avenue by providing evidence for the influence of (four) particular variables on the emergence of a narrow type of MCS.

### *2.4 How performance measures and reward systems may be used under particular operational strategies, and to support new manufacturing philosophies*

The findings of Chenhall & Langfield-Smith (1998) confirm the claim that a range of management accounting practices and management techniques combine to enhance performance under different strategic priorities have been instrumental in this area. Curiously, their findings appear yet to be extensively explored by subsequent researchers<sup>5</sup>. However, their subsequent work examining the extent to which a manufacturing company used performance measurement and a gain-sharing reward system to achieve strategic change over a 15-year period (Chenhall & Langfield-Smith, 2003), did corroborate and extend many of the findings from their 1998 study.

### *2.5 Aspects of the MCS - Strategy relationship which focus on operational as well as senior management*

Both Marginson (1999, 2002) as well as Nilsson & Rapp (1999) provide support for the claim that the borderline between management and operational levels are beginning to dissolve. Moreover these three studies also provide evidence for the central role that MCS may play in both strategy formulation as well as strategy implementation. In distinguishing between the use as opposed to the design of MCS, Marginson (1999) give credence to the findings of Simons (1994, 1995), in the role of MCS in the implementation and formulation of strategy. The importance of informal MCS as compared with formal MCS in the relationship with strategy (Marginson, 2002) is another critical contribution in this avenue of research.

### *2.6 The extent to which MCS can minimize the disruption caused by strategic change over time*

The work of Kober, Ng & Paul (2003) has not only reinforced the significance of differentiating between design and use of MCS in supporting strategy implementation, but also suggests there is a match between MCS and performance which evolves as the contingent variables change over time. However, as the authors note, what is not clear though, is whether the MCS changes as a consequence of strategy, or if the MCS facilitates a change in strategy. One aspect of strategic change, investigated by Abernethy & Brownell (1999) is how budgets can be used interactively in a hospital setting. A key

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<sup>5</sup> Excluding the study by Baines & Langfield-Smith (2003) which also addressed many of these issues.

finding of this study is that an interactive style of budget use can mitigate the disruptive performance effects of the strategic change process. In a manner similar to the study of Auzair & Langfield-Smith (2005), these two studies are significant in that by focussing on public sector organisations, they consider the MCS – strategy relationship in a context other than that of the commercial sector. Finally, the research conducted by Granlund & Taipaleenmaki (2005) in exploring the MCS practices of new economy firms (NEF's), provides interesting and much needed information about fast-growing firms comprising this industry.

On the basis of a comparison of the findings of the studies reviewed, it is apparent that research undertaken over the past decade has confirmed, and, to a lesser extent, extended our understanding of the MCS-strategy relationship. This extension however, has been primarily confined to the particular contexts within which this relationship has been investigated. It is argued that this contention is entirely consistent with those of Langfield-Smith (2005), in her identification and appraisal of the six themes that have emerged as central to the MCS-strategy discourse since 1997. While the further research avenues suggested by Langfield-Smith (2005) have predominantly based upon these themes and particular contexts within which the MCS-strategy relationship may be investigated, this paper pursues a different direction by choosing to focus attention on *how studies might proceed* rather than *what might be examined*. To achieve this, a further analysis of the studies reviewed in this paper, beyond their findings, and extending to the design and particular perspective adopted will be taken in order to acquire additional insights and understanding. To undertake such an analysis, two frameworks will be used as a basis for the analysis of empirical and case-study research respectively, and it is towards this end that the attention of this paper is now directed.

### **3. Classification of empirical and case - based MCS-strategy research**

The increasing variety of theoretical perspectives, designs, and methods in empirical management accounting research requires a determination of how, if at all, these different perspectives and methods relate to each other and how complete and valid an explanation of the causes and effects of management accounting the literature as a whole provides (Luft & Shields, 2003).

Similarly, some prespecified agreed upon analytical framework is required in order to evaluate the theoretical contribution of case study research to the literature (Keating, 1995).

Mindful of these observations and of the fundamentally different focus of each type of research, separate frameworks for analysing empirical and case studies will be proposed in the following two sub-sections. These frameworks will provide the “lens” through which the contribution of both forms of MCS – strategy research efforts; as well areas of theoretical, methodological and empirical weakness, may be identified.

### *3.1 Empirical Research*

The observation that the findings provided by the MCS-strategy stream of research remain “fragmentary, providing limited knowledge about the forms of MCS that suit particular strategies and in fact, were incompatible and sometimes conflicting” (Langfield-Smith, 1997, p.228), has been reinforced by numerous other scholars: Simons, 1990; Chapman, 1997; Abernethy & Brownell, 1999; Nilsson & Rapp, (1999); Marginson, (1999); Kald, Nilsson & Rapp (2000); Chenhall, 2003; Ittner, Larcker & Randall, 2003; Kober, et al, 2003; Gerdin & Greve, 2004. The key problematic implication of these ostensible inconsistencies is that care must be taken in comparing results of studies without a means by which findings can be related.

Two primary explanations of these conflicts are offered by scholars. First, differences in research design and, in particular the nature and interrelationship between variables selected for investigation (Gerdin & Greve, 2004, Luft & Shields, 2003). Second, differences in the way that control, performance, and strategy are operationalised and measured (Langfield-Smith, 1997; Marginson, 1999; Nilsson and Rapp, 1999; Kald, Nilsson and Rapp, 2000; Kober, et al, 2003; Gerdin & Greve, 2004).

- *The nature and interrelationship between variables*

As applied to the MCS-strategy relationship, contingency theory suggests that the choice of appropriate strategy or MCS depends upon the circumstances surrounding a specific organisation. Moreover, the extent to which fit is appropriate is reflected in enhanced performance (Chenhall, 2003; Ittner & Larcker, 2001; Otley, 1999). The concept of fit in contingency research design is central to the development of the theory, to the collection of data, and to the statistical analysis of the proposition (Drazin & Van de Ven, 1985). In particular, because some of the conceptualisations of fit used seem not to be comparable, apparently contradictory or supportive results may have to be reinterpreted (Gerdin & Greve, 2004).

There are various forms of theoretical fit that have been used to classify contingency-based research in MCS. For example, Gerdin & Greve (2004) provide a classificatory framework<sup>6</sup> in which different forms of contingency fit are identified, the extent to which the different forms of fit can be related to each other is analysed, and the degree to which the various forms of fit allow comparisons to be made is evaluated. Moreover this framework has a hierarchical structure, which classifies fit in terms of Cartesian or Configuration (what constitutes fit, and how it is attained); Congruence or Contingency (alternate ways of modelling or measuring fit); Moderation or Mediation (how

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<sup>6</sup> See; Gerdin, J. & Greve, J. (2004) “Forms of contingency fit in management accounting research – a critical review”, *Accounting, Organizations and Society*, vol 29, pp 303-326.

dependent and independent variables interact); and Strength or Form (the strength of the relationships between variables).

On the basis of the evidence they reviewed, Gerdin & Greve (2004, p323) contend that, "... very different conceptualisations of fit have been used, and very few researchers fully acknowledge the difficulties of relating different forms to each other. As a result, some researchers claim that their results are contradictory when this is not necessarily the case, while others incorrectly argue that their results are strongly supported by former studies".

- *The operationalisation and measurement of variables*

This finding of Gerdin & Greve (2004) reinforces the contention of Langfield-Smith that care must be taken in comparing results of empirically-based contingency studies without a means by which the findings of these studies can be related. However this reinforcement is predicated on the assumption that fit is the predominant factor in the research design upon which inconsistencies between findings might be explained. The operationalisation and measurement of variables themselves is not directly addressed by this framework.

Consequently, it is contended that a broader framework that incorporates the research design issue of interrelationship between variables (as addressed by Gerdin & Greve, (2004)), *as well as* differences in the way that control, performance, and strategy are operationalised and measured (Langfield-Smith, 1997, p. 228, italics added); Nilsson and Rapp, (1999); Kald, Nilsson and Rapp (2000); Kober, et al, 2003); and Gerdin & Greve, (2004) would be warranted.

Such a framework which does incorporate two issues of research design, and operationalisation and measurement of key variables is discussed by Luft and Shields, (2003) who present a summary graphic representation (maps) of the theory-consistent evidence about the causes and effects of management accounting, by analysing 275 articles published in six leading accounting journals<sup>7</sup>.

The approach adopted by Luft & Shields (2003)<sup>8</sup>, is illustrated in *Figure 1*.

Although the discourse offered by Luft & Shields (2003) extends beyond the scope of the MCS-strategy relationship, the three questions they pose and the guidelines they offer provide a means by which the findings of contingency-based empirical research might be compared and contrasted, thereby providing an analytical tool for the evaluation of studies of this type. As such, this framework

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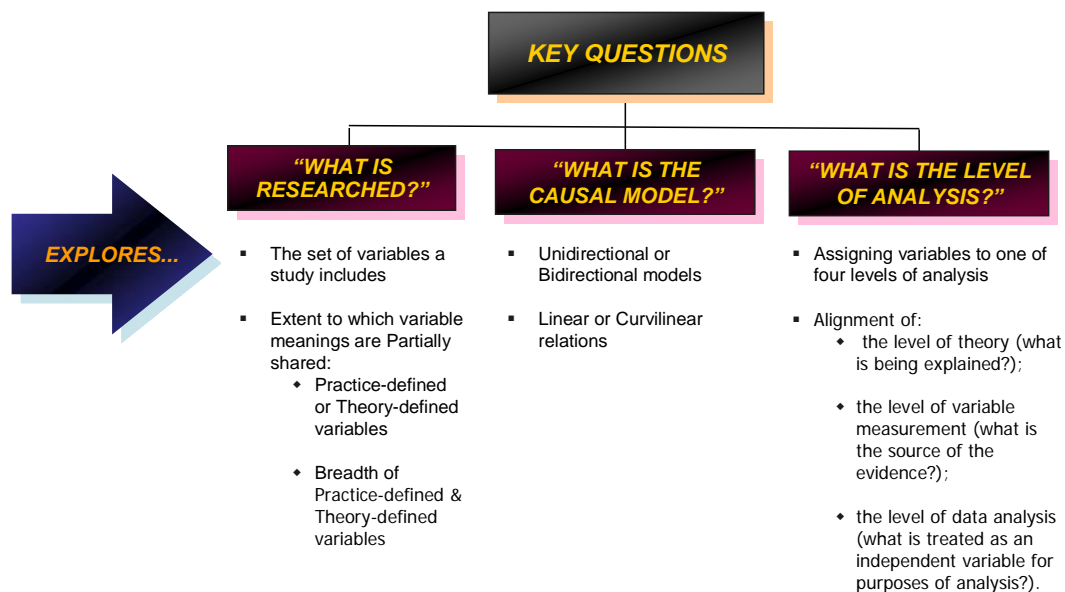
<sup>7</sup> The study appeared in one of the following six journals before 2002: Accounting, Organizations and Society, Contemporary Accounting Research, Journal of Accounting and Economics, Journal of Accounting Research, Journal of Management Accounting Research, or The Accounting Review.

<sup>8</sup> Discussion of this framework in this section is closely based upon, Luft, J. & Shields, M.D. (2003) "Mapping management accounting: graphics and guidelines for theory-consistent empirical research", **Accounting, Organizations and Society**, 28, pp 169-249. This article should be consulted for a more detailed discussion.

will be adopted as the basis upon which empirical MCS – strategy research will be compared and contrasted in this paper.

\*\*\* *Insert Figure 1 here* \*\*\*

**Figure 1: Luft & Shields' framework for classifying empirical studies**



Source: Luft, J. & Shields, M.D. (2003)

### 3.2 Case-Study research

Keating (1995) presents and illustrates a framework for evaluating the significance of theoretical and practical contributions of case study findings to the management accounting literature. Keating (1995, p.67) argues that, "at a minimum, authors should identify key findings, connect these outputs to research objectives and discuss how the case study has advanced or challenged the state of theory", in order to address the fundamental question, "what have we learned about management accounting from this case study".

✧ Predicated on the assumption that the contribution of case studies will vary with the theoretical objectives of each study, the framework distinguishes between four distinct types of case studies within three stages of theory development as the classificatory and evaluative criterion. .

The interrelationship between the three stages of theory development and the four types of case study is illustrated in *Figure 2*<sup>9</sup>.

This framework is primarily descriptive rather than prescriptive, and fails to provide substantial assistance on unresolved issues or recommended directions for future research. Such evaluations are left to the reader to infer. Despite these qualifications however, the framework nevertheless provides an indication of the range of approaches adopted by field-based MCS – strategy research, identifies the predominant scope of the research, and reveals the different emphases of findings. Furthermore, although not definitive about apparent directions for further investigation, application of the framework is useful in providing suggestions as to how theory and knowledge may proceed. As such, it satisfies the desire in this paper, to provide a vehicle whereby the comparative contribution of the study may be located in the context of the extant knowledge in MCS - strategy research, and accordingly, will be adopted as the basis upon which case-based research will be evaluated.

**\*\*\* Insert Figure 2 here \*\*\***

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<sup>9</sup> See Keating, P.J. (1995) "A framework for classifying and evaluating the theoretical contributions of case research in management accounting", *Journal of Management Accounting Research*, Vol. 7, pp. 74-75. for a more thorough discussion of this framework.

**Figure 2: Keating's framework for classifying Case Studies**

STAGES	CASE STUDY TYPE	OUTPUTS
THEORY DISCOVERY	THEORY DISCOVERY	<ol style="list-style-type: none"> <li>1. Theoretical building blocks in form emergent constructs and hypothesized relationships</li> <li>2. Novelty and theoretical/practical significance of analysis</li> <li>3. Domain of theoretical applicability and relationships to existing theories</li> <li>4. Summary of knowledge gaps and unresolved theoretical puzzles</li> <li>5. Specification of research program to develop theoretical issues raised</li> </ol>
THEORY REFINEMENT	THEORY ILLUSTRATION	<ol style="list-style-type: none"> <li>1. Evidence to support plausibility of illustrated theory</li> <li>2. Respecified constructs and relationships</li> <li>3. Relative strength, limitations and domains of illustrated and rival theories</li> <li>4. Recommended next steps to specify or test illustrated theory</li> </ol>
	THEORY SPECIFICATION	<ol style="list-style-type: none"> <li>1. Clear statement of confirmed, disconfirmed, respecified and new constructs and relationships</li> <li>2. Operational definitions of concepts</li> <li>3. Testable propositions</li> <li>4. Specification of further specification studies to address anomalous evidence or strategies for theory test</li> </ol>
THEORY REFUTATION	THEORY REFUTATION	<ol style="list-style-type: none"> <li>1. Findings of falsification/corroboration and theoretical/practical significance</li> <li>2. Refinements designed to strengthen theory weakened by negative evidence</li> <li>3. Counterpoint interpretations of previous case research</li> <li>4. Specification of further studies</li> </ol>

Adapted from: Keating, P.J. (1995) "A framework for classifying and evaluating the theoretical contributions of case research in management accounting", *Journal of Management Accounting Research*, Vol. 7, pp. 74-75.

### 3.3 Using the Luft & Shields framework to analyse empirical research

Figure 3 compares the twelve empirical studies reviewed in terms of the three questions suggested by the Luft & Shields framework; what is researched?; what is the causal model?; and what is the level of analysis?

**\*\*\* Insert Figure 3 here \*\*\***

**Figure 3: Comparison of empirical studies**

	<i>Chung (1996)</i>	<i>Chenhall &amp; Langfield-Smith (1998)</i>	<i>Shih &amp; Yong (2001)</i>	<i>Moore &amp; Yuan (2001)</i>	<i>Davila (2004)</i>	<i>Henri (2005)</i>	<i>Auzair &amp; Langfield-Smith (2005)</i>
<p><b>"WHAT IS RESEARCHED?"</b></p> <ul style="list-style-type: none"> <li>Variables investigated</li> <li>Practice-defined or Theory defined</li> <li>Breadth of definition</li> </ul>	<ul style="list-style-type: none"> <li>Examined the different emphasis placed on MCS attributes, depending on strategic type</li> <li>Theory-defined, based on Miles &amp; Snow typology</li> </ul>	<ul style="list-style-type: none"> <li>The way in which MAP combine with management techniques under various strategic priorities to enhance performance</li> <li>Strategy Theory-defined based on Porter's typology</li> </ul>	<ul style="list-style-type: none"> <li>Seven MCS attributes &amp; how they are related to (Prospector) strategy</li> <li>Strategy Theory-defined, based on Miles &amp; Snow typology</li> </ul>	<ul style="list-style-type: none"> <li>Determination of whether MAS differ across stages of organisational life-cycle, and if there is a pattern in MAS formality</li> <li>Strategy &amp; MAS Practice-defined</li> </ul>	<ul style="list-style-type: none"> <li>Focus on those MCS associated with human resource management</li> <li>MCS Theory-defined</li> </ul>	<ul style="list-style-type: none"> <li>Relationships between the use of MCS, organisational capabilities and organisational performance.</li> <li>All variables theory defined</li> </ul>	<ul style="list-style-type: none"> <li>Investigation of the influence of specified contingent variables on the design of MCS in service organizations.</li> <li>Theory defined</li> </ul>
<p><b>"WHAT IS THE CAUSAL MODEL?"</b></p> <ul style="list-style-type: none"> <li>Unidirectional or Bidirectional models</li> <li>Linear or Curvilinear relations</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as causal direction is 1-way &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as causal direction is 1-way &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as causal direction is 1-way &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as causal direction is 1-way &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as reflected by recursive SEM &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as reflected by recursive SEM &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as reflected by recursive SEM &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>
<p><b>"WHAT IS THE LEVEL OF ANALYSIS?"</b></p> <ul style="list-style-type: none"> <li>Level at which the variable of interest occurs</li> <li>What is being explained &amp; what is treated as an independent variable?</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the organisational level</li> <li>Evidence based on questionnaire responses of financial controllers</li> <li>MCS defined as the dependent variable. Strategy, as the independent variable</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the organisational as well as the SBU level</li> <li>Evidence based on questionnaire responses of senior managers</li> <li>Performance defined as the dependent variable. Strategy &amp; MCS as the independent variables</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the organisational level</li> <li>Evidence based on questionnaire responses of Controller or Vice President Finance</li> <li>Prospector strategy defined as the dependent variable. MCS attributes as the independent variables</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the organisational level</li> <li>Evidence based on questionnaire responses of CEO's</li> <li>MAS attributes defined as the dependent variable. Strategy; Structure; Leadership; Decision-Making styles. Organisational performance as independent variables</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the organisational as well as the SBU level</li> <li>Evidence based on questionnaire responses of CEO's, founders &amp; managers</li> <li>MCS as the dependent variable. Independent variables: Size; Venture Capital; Age; Tenure of CEO's</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the organisational as well as the SBU level</li> <li>Evidence based on questionnaire responses of CEO's, founders &amp; managers</li> <li>Organisational Performance as the dependent variable. Independent variables: Use of MCS, Market orientation; Entrepreneurship; Innovativeness; and organizational learning</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the organisational level</li> <li>Evidence based on questionnaire responses of Financial Controllers</li> <li>Type of MCS as the dependent variable. Service process; cost leadership strategy; differentiation strategy; organization life cycle stages as the independent variables</li> </ul>

**Figure 3: Comparison of empirical studies (Contd.)**

	<i>Abernethy &amp; Brownell (1999)</i>	<i>Bouwens &amp; Abernethy (2000)</i>	<i>Chung, Gibbons &amp; Schoch (2003)</i>	<i>Baines &amp; Langfield-Smith (2003)</i>	<i>Bisbe &amp; Otley (2004)</i>
<p><b>"WHAT IS RESEARCHED?"</b></p> <ul style="list-style-type: none"> <li>Variables investigated</li> <li>Practice-defined or Theory defined</li> <li>Breadth of definition</li> </ul>	<ul style="list-style-type: none"> <li>Examined the relationship between strategic change, style of budget use and performance.</li> <li>Theory defined based on Miles &amp; Snow (1978) typology of strategy, and Shortell, et al (1990) conceptualisation of strategic change.</li> </ul>	<ul style="list-style-type: none"> <li>Assessed whether the relation between customization and MAS is a direct one or whether the relation operates via interdependence.</li> <li>Practice defined where Customization is conceptualised as a continuum; Interdependence based on Van de Ven, Delbecq and Koenig (1976); MAS measured on an adaptation of Chenhall &amp; Morris (1986).</li> </ul>	<ul style="list-style-type: none"> <li>Investigated the control issues relating to knowledge flows, product flows and capital flows in MNC subsidiaries.</li> <li>Practice defined where majority of dependent and independent variables were developed to directly address the research question.</li> </ul>	<ul style="list-style-type: none"> <li>Investigated whether changes in the organizational environment have led to changes in the organizations' strategy, organizational design, advanced manufacturing technology and management accounting practices and, in turn, how these changes influence organizational performance.</li> <li>Strategy, theory-defined. Other variables, largely Practice-defined.</li> </ul>	<ul style="list-style-type: none"> <li>Investigated whether the relationship between interactive controls and innovation is a mediating or a moderating one.</li> <li>Interactive use of MCA Theory-defined. Performance, Practice defined.</li> </ul>
<p><b>"WHAT IS THE CAUSAL MODEL?"</b></p> <ul style="list-style-type: none"> <li>Unidirectional or Bidirectional models</li> <li>Linear or Curvilinear relations</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as causal direction is 1-way &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as causal direction is 1-way &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as causal direction is 1-way &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as causal direction is 1-way &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>	<ul style="list-style-type: none"> <li>Unidirectional as causal direction is 1-way &amp; linear as no limit suggested by the effect of independent variables on the dependant variable</li> </ul>
<p><b>"WHAT IS THE LEVEL OF ANALYSIS?"</b></p> <ul style="list-style-type: none"> <li>Level at which the variable of interest occurs</li> <li>What is being explained &amp; what is treated as an independent variable?</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the Organisational level</li> <li>Evidence based on questionnaire responses of CEO's</li> <li>Performance defined as the dependent variable. Strategic Change, and Style of Budget use as the independent variables.</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the SBU level</li> <li>Evidence based on questionnaire responses of middle-level managers</li> <li>MAS use defined as the dependent variable. Customization, and Interdependence as the independent variables.</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the SBU level</li> <li>Evidence based on questionnaire responses of Chairmen, Presidents, Managing Directors, and Chief Operating Executives</li> <li>Dependent variables: Output, Behavioural and Socialisation controls. Independent variables: knowledge, product and capital flows; strategic management style.</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the SBU as well as the Organisational level</li> <li>Evidence based on questionnaire responses of General managers</li> <li>Changes in competitive environment defined as an exogenous variable. All other variables are endogenous variables. Organizational performance defined as the dependent variable.</li> </ul>	<ul style="list-style-type: none"> <li>Focus on the Organisational level</li> <li>Evidence based on questionnaire responses of CEO's</li> <li>Performance defined as the dependent variable. Innovation, Use of MCS as the independent variables.</li> </ul>

- *What is researched?*

Consistent with the approach advocated by Luft & Shields (2003), studies which have operationalised dependent variables on the basis of existing theory have been categorised as Theory-defined. Of the twelve studies reviewed, nine have employed theory-defined dependent variables (Chung, 1996; Chenhall & Langfield-Smith, 1998; Shih & Yong, 2001; Davila, 2005; Henri, 2005; Auzair & Langfield-Smith, 2005; Abernethy & Brownell, 1999; Baines & Langfield-Smith, 2003; Bisbe & Otley, 2004). The theory-defined variables in the six studies are analysed using different theoretical perspectives, and consequently they may capture similar but not necessarily identical phenomena. The three studies which have derived definitions of variables from management accounting practice (Moores & Yuen, 2001; Bouwens & Abernethy, 2000; Chung et al., 2003), are likely to share meaning with one or more theory-defined variables but unlikely to have identical meaning with any of them (Luft & Shields, 2003, p. 186). In general then, the first insight garnered from the application of the Luft & Shields (2003) framework, is that the constructs studied differ to a greater or lesser extent.

Nine studies include strategy as a variable of interest, (Chung, 1996; Chenhall & Langfield-Smith, 1998; Shih & Yong, 2001; Moores & Yuen 2001; Henri, 2005; Auzair & Langfield-Smith, 2005; Abernethy & Brownell, 1999; Bouwens & Abernethy, 2000; Chung et al., 2003; Baines & Langfield-Smith, 2003; Bisbe & Otley, 2004). Moores & Yuen (2001) use an adaptation of the Gupta and Govindarajan (1984) build, hold, harvest and divest classification of strategy which focuses on variations in strategic missions. Henri (2005) has adopted a RBV perspective of the strategy construct. The remaining seven studies employ established typologies in the classification of strategy. Chung (1996), Shih & Yong (2001), and Abernethy & Brownell (1999) use the Miles & Snow (1978) typology whilst Auzair & Langfield-Smith (2005), Chenhall & Langfield-Smith (1998), and Baines & Langfield-Smith (2003) use the Porter (1980) typology. Bouwens & Abernethy (2000) consider only one form of strategy, customization, based on Pugh, et al. (1969).

Chung (1996) found that the design of MCS differed in organisations pursuing different strategies. Similarly, Shih & Yong (2001) findings that firms pursuing particular strategies adopt different MCS designs are consistent with those of Chung (1996). Consequently, in terms of what is being researched, the findings of Chung (1996), and those of Shih & Yong (2001) appear comparable with each other. Abernethy & Brownell (1999) however, consider the use rather than the design of MCS and consequently, although focusing on a similar strategic taxonomy, their findings are not directly comparable with those of Chung (1996), or Shih & Yong (2001). Chenhall & Langfield-Smith (1998) conclude that higher performing firms employing different strategies would benefit from different management techniques and management accounting practices. Baines & Langfield-Smith (2003) corroborate and extend this conclusion, through their finding that an increased focus on differentiation strategies and the greater

reliance on non-financial accounting information are instrumental factors associated with improved organisational performance. Auzair & Langfield-Smith (2005) find that firms pursuing different strategies place different emphases on different MCS designs. Although caution should be exercised in equating the comparability of the management techniques and management accounting practices investigated by Chenhall & Langfield-Smith (1998) and Baines & Langfield-Smith (2003), with the different MCS designs investigated by Auzair & Langfield-Smith (2005), what might be broadly concluded is that the design of control mechanisms appears to be a function of strategy pursued.

Turning to the comparability of findings in terms of MCS, *figure 3* suggests a wide diversity in the conceptualisation and focus of measurement of this construct, MCS. Chung (1996) and Shih & Yong (2001), adopt the attributes examined by Simons (1987) as a basis for their operationalisation of MCS. Abernethy & Brownell (1999) also adopt the definition of MCS used by Simons (1987), however, the use of budgets as examined in this study represents a somewhat narrow view of MCS and limits the extent to which findings can be compared with those of Chung (1996) and Shih & Yong (2001).

Chenhall & Langfield-Smith (1998) in adopting a systems approach, expected that, "various combinations of strategies, management techniques and management accounting practices would combine in mutually supportive ways to enhance organisational performance" (Chenhall & Langfield-Smith (1998, p251). This relatively broad conceptualisation of MCS was also adopted by Baines & Langfield-Smith (2003). The studies of Bouwens & Abernethy (2000), Moores & Yuen (2001), and Bisbe & Otley (2004), focus on MAS, rather than MCS. However, as Chenhall (2003, p. 129) points out, "the terms MAS, and MCS, are sometimes used interchangeably. MAS refers to the systematic use of a collection of management accounting practices such as budgeting or product costing, to achieve some goal. MCS is a broader term that encompasses MAS and also includes other controls such as personal or clan controls". MCS is defined by Davila (2005) as, "the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities" (Simons, 1994, p. 5). The typology initially proposed by Thompson (1967) and Ouchi (1979) and significantly refined by Merchant (1985, 1998) was used to operationalise this construct. This typology identifies three different control: personnel control - mechanisms that influence organisational actors by aligning their personal objectives with those of the organization; action control - mechanisms that influence organisational actors by prescribing the actions they should take; and results control - mechanisms that influence organisational actors by measuring the result of their actions. Henri (2005) considers only one form of MCS, PMS. The extent to which results could apply to other forms of MCS cannot therefore be readily assumed. Finally, Chung et. al. (2000), adopt a comparatively broad view of MCS to include behavioural, output, socialisation, financial and strategic controls, and although not directly comparable, this theme is developed by Auzair & Langfield-Smith (2005) who incorporate a wider range

of controls than previous researchers by developing a specific model for the operationalisation of MCS as a multidimensional construct, including both formal and informal types of control.

As is the case with strategy, the use of the Luft & Shields (2003) framework, highlights the wide assortment of ways in which MCS has been operationalised in the literature, thereby suggesting that any comparisons need to be made with caution. What does seem to be common however, is that there a discernible difference between the use and design of MCS under different strategies.

Finally, the concept of organisational performance as an indication of the appropriate fit between MCS and strategy (if a broad definition of these constructs is adopted) is included in five studies (Chenhall & Langfield-Smith, 1998; Abernethy & Brownell, 1999; Baines & Langfield-Smith, 2003; Bisbe & Otley, 2004; and Henri, 2005). Considerable difference in the definitions of “organisational performance” are used in these studies, thus, direct comparisons should be made with caution. Nevertheless, findings of these studies seem to support the contingent view that a particular design or use of MCS for a given strategy will result in higher performance.

- *What is the causal model?*

*Figure 3* illustrates the considerable diversity in both dependent as well as independent variables selected as the basis for investigation by the studies reviewed.

Dependent variables have included MCS/MAS (Chung; 1996; Bouwens & Abernethy, 2000; Moores & Yuen, 2001; Chung et al., 2003; Davila, 2005; Auzair & Langfield-Smith; 2005); Organisational Performance (Chenhall & Langfield-Smith, 1998; Abernethy & Brownell, 1999; Baines & Langfield-Smith, 2003; Bisbe & Otley, 2004; Henri, 2005); and Strategy (Shih & Yong, 2001). Changes in Competitive Environment; Changes in Strategy; Changes in Advanced Management Accounting Practices; Changes in Organisational Design; Changes in Technology; Changes in Non-Financial management accounting information.

The variety of independent variables has been similarly diverse and includes customization (manufacturing flexibility) and interdependence between departments strategy (Bouwens & Abernethy, 2000); changes in competitive environment, changes in strategy, changes in advanced management accounting practices, changes in organisational design, changes in technology; changes in non-financial management accounting information (Baines & Langfield-Smith, 2003); strategy, structure, leadership, decision-making styles, organisational performance, (Moores & Yuen (2001); size, venture capital, age, tenure of CEO, (Davila, 2005); interactive use of MCS, innovation (Bisbe & Otley, 2004); knowledge flows, product flows, capital flows (Chung et al., 2003); market orientation, entrepreneurship, innovativeness, organizational learning, (Henri,

2005); service process, strategy, organisation life cycle, (Auzair & Langfield-Smith, 2005); MCS, (Chung, 1996; Shih & Yong, 2001); strategic change, style of budget use, (Abernethy & Brownell, 1999); and management accounting practices in combination with management techniques (Chenhall & Langfield-Smith, 1998).

Inconsistency of and between dependent and independent variables makes the identification of causes and effects difficult. This issue of inconsistency has been addressed by Luft & Shields (2003) in their discussion of causation, and, in particular, whether studies can be classified as unidirectional or bidirectional. The implication being that different choices about causal direction may lead to inconsistencies between individual studies (Luft & Shields, 2003). If relationships are bi-directional, then it is possible that they are simultaneously determined representing a situation in equilibrium, or they are related cyclically where MCS determines outcomes, then outcomes determine MCS, followed by MCS effecting outcomes and so on. Given the existence of cyclical relationships, the predictions from contingency-based theory may differ depending on which stage of the cycle is being proposed. Moreover, given that most contingency-based research has used cross-sectional survey methods, the results may be relevant to only one stage of the cycle.

In all of the studies reviewed however, a unidirectional model was employed. This is not a startling observation. Chenhall (2003) observes, most of the MCS research implicitly assumes unidirectional relationships. The failure of recognising the bidirectional implications of the MCS - strategy relationship however, is that the potential interactive effect between strategy and MCS on performance cannot be readily be evaluated. The potential relevance of this effect however, has been previously demonstrated (Govindarajan, 1988; Govindarajan & Fisher, 1990).

Linearity is the other criterion discussed by Luft & Shields (2003) in evaluating causal models. Much of the theory underlying empirical management accounting research predicts curvilinear relations. These relations are rarely represented in empirical management accounting research, however: only 1% of the studies represent curvilinear relations (Luft & Shields, 2003, p.189). Similarly, in the twelve studies reviewed, no evidence of a test for curvilinear relationships<sup>10</sup> appears apparent.

On the basis of evaluating studies in terms of a cause-relationship frame of reference therefore, a conclusion that may be drawn is that our understanding of the directionality as well as the potential magnitude of MCS – strategy relationships is particularly underdeveloped at this stage.

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<sup>10</sup> Although Davila (2005, p. 227) does acknowledge the possibility that the relationship between the emergence of MCS, and age may not be linear.

- *What is the level of analysis?*

Detailed consideration of levels of analysis are needed to determine whether similarly named variables at different levels of analysis are actually the same variable – or if they are not identical, how they relate to each other (Luft & Shields, 2003, p.183).

All twelve studies under consideration investigated phenomena at different levels – in some cases, at both organisational as well as SBU levels. The implication of different levels of analysis is that if the study is intended to examine causes and effects at a single level of analysis only, then care needs to be taken to insure that these causes and effects are not confused with causes and effects at other levels. This confusion may be particularly hazardous when variables at different levels have the same name but have different causes and effects at different levels of analysis: in such cases, a theory explaining a variable at one level may not provide a valid basis for a study of the variable with the same name at another level (Luft & Shields, 2003, p.196). As such, direct comparisons between findings may be ambiguous.

- *Evaluation of empirical research*

The diversity in terms of what has been researched, what causal models have been identified, and what level of analysis has been the focus of investigation, makes comparison of empirical studies difficult. Reflecting on the ways in which the MCS – strategy relationship have been researched, it appears apparent that there exists considerable diversity in both the definition and measurement of MCS, performance, and to a lesser extent, strategy. Notwithstanding the difficulty of comparing studies in terms of what has been researched, if a broad conceptualisation of MCS as well as strategy is adopted, the picture provided through the lens of the Luft & Shields framework is one which can assist in identifying valid connections. In broad terms, the use of this framework provides guidelines that assist the comparability of and links between, studies. Specifically, it is contended that how contingency-based empirical studies have contributed to our knowledge of the MCS-strategy relationship can be articulated in the form of two propositions:

- *MCS attributes differ between organisations with different strategic orientations.*
- *A match between particular strategic orientations and particular MCS designs will enhance performance.*

### *3.4 Using the Keating framework to analyse case-based research*

Figure 4 compares the nine case studies reviewed in terms of the case taxonomies suggested by the Keating framework. In so doing, it reveals two specific insights into the breadth and depth of extant knowledge, and common themes and links between case study findings

\*\*\* Insert Figure 4 here \*\*\*

**Figure 4: Comparison of Case Studies**

STAGES	CASE STUDY TYPE	OUTPUTS	Nilsson & Rapp (1999)	Marginson (1999)	Marginson (2002)	Kober, Ng & Paul (2003)	Nilsson (2000)
THEORY DISCOVERY	THEORY DISCOVERY	1. Theoretical building blocks in form emergent constructs and hypothesized relationships	✓				
		2. Novelty and theoretical/practical significance of analysis				✓	
		3. Domain of theoretical applicability and relationships to existing theories		✓			
		4. Summary of knowledge gaps and unresolved theoretical puzzles	✓	✓			
		5. Specification of research program to develop theoretical issues raised	✓				
THEORY REFINEMENT	THEORY ILLUSTRATION	1. Evidence to support plausibility of illustrated theory				✓	✓
		2. Respecified constructs and relationships					✓
		3. Relative strength, limitations and domains of illustrated and rival theories					✓
		4. Recommended next steps to specify or test illustrated theory					✓
THEORY REFINEMENT	THEORY SPECIFICATION	1. Clear statement of confirmed, disconfirmed, respecified and new constructs and relationships			✓	✓	
		2. Operational definitions of concepts			✓		
		3. Testable propositions			✓		
		4. Specification of further specification studies to address anomalous evidence or strategies for theory test			✓	✓	
THEORY REFUTATION	THEORY REFUTATION	1. Findings of falsification/corroborator and theoretical/practical significance					
		2. Refinements designed to strengthen theory weakened by negative evidence					
		3. Counterpoint interpretations of previous case research					
		4. Specification of further studies					

Adapted from: Keating, P.J. (1995) "A framework for classifying and evaluating the theoretical contributions of case research in management accounting", *Journal of Management Accounting Research*, Vol. 7, pp. 74-75.

**Figure 4: Comparison of Case Studies (Contd.)**

STAGES	CASE STUDY TYPE	OUTPUTS	Nilsson (2002)	Chenhall & Langfield-Smith (2003)	Granlund & Taipaleenmaki (2003)	Malina & Selto (2004)
THEORY DISCOVERY	THEORY DISCOVERY	1. Theoretical building blocks in form emergent constructs and hypothesized relationships			✓	
		2. Novelty and theoretical/practical significance of analysis			✓	
THEORY REFINEMENT	THEORY ILLUSTRATION	3. Domain of theoretical applicability and relationships to existing theories			✓	
		4. Summary of knowledge gaps and unresolved theoretical puzzles			✓	
THEORY REFINEMENT	THEORY SPECIFICATION	5. Specification of research program to develop theoretical issues raised				
		1. Evidence to support plausibility of illustrated theory	✓	✓		
THEORY REFINEMENT	THEORY SPECIFICATION	2. Respecified constructs and relationships	✓	✓		
		3. Relative strength, limitations and domains of illustrated and rival theories	✓	✓		
THEORY REFUTATION	THEORY REFUTATION	4. Recommended next steps to specify or test illustrated theory	✓	✓		
		1. Clear statement of confirmed, disconfirmed, respecified and new constructs and relationships				✓
THEORY REFUTATION	THEORY REFUTATION	2. Operational definitions of concepts				✓
		3. Testable propositions				✓
THEORY REFUTATION	THEORY REFUTATION	4. Specification of further specification studies to address anomalous evidence or strategies for theory test				✓
		1. Findings of falsification/corroborator and theoretical/practical significance				
THEORY REFUTATION	THEORY REFUTATION	2. Refinements designed to strengthen theory weakened by negative evidence				
		3. Counterpoint interpretations of previous case research				
THEORY REFUTATION	THEORY REFUTATION	4. Specification of further studies				

Adapted from: Keating, P.J. (1995) "A framework for classifying and evaluating the theoretical contributions of case research in management accounting", *Journal of Management Accounting Research*, Vol. 7, pp. 74-75.

- *The breadth and depth of extant knowledge*

Five observations are immediately apparent from an inspection of *Figure 4*.

First; the case studies reviewed are characterised by a diversity of research scope with individual case studies appearing to have made contributions to particular stages of theory discovery with overlap into the stage of theory refinement.

Second; of the nine studies reviewed, four (Marginson, 1999; Nilsson & Rapp, 1999; Kober, et al, 2003; Granlund & Taipaleenmaki, 2005) may be classified as theory discovery. This reflects the particular emphases of these three studies to describe novel phenomena, or adopt new perspectives in an attempt to explain ostensible anomalies in existing theory.

Third, two of the nine case studies (Marginson, 2002; Malina & Selto, 2004) appears to be primarily aimed at theory specification, and an additional study (Kober et al., 2003), possesses some of the elements of a theory specification study. These three studies may be thought to represent an attempt to develop models which seek to refine and confirm an existing theoretical stance.

Fourth, Kober et al., (2003), appears to incorporate elements of three case study types. This may reflect a deliberate "open ended" approach to research, but may also reflect the relatively underdeveloped state of theory in this area.

Finally, none of the case studies reviewed can be considered to be classified as theory refutation research. It is suggested that this reinforces the contention that

theory in this area has yet to become well specified. Rather than build upon an established body of knowledge and theoretical orientation, the case study research reviewed has focused on various aspects of the MCS - strategy relationship, using a variety of theoretical perspectives including, contingency (Marginson, 1999; Nilsson, 2000, 2002; Kober et al, 2003; Malina & Selto, 2004); management control (Marginson, 1999, 2002; Nilsson & Rapp, 1999); cybernetic (Marginson, 1999); corporate life cycle-based theory (Granlund & Taipaleenmaki, 2005); organisational trust (Chenhall & Langfield-Smith, 2003)<sup>11</sup>; and, organisational behaviour (Marginson, 1999; Nilsson & Rapp, 1999). This wide range of theoretical dispositions from which research has been conducted suggests that extant knowledge may be said to have advanced progressively across several, different rather than on a single frontier – in short, extant knowledge is “broad, but not deep”.

- *Common themes and links between Case Study findings*

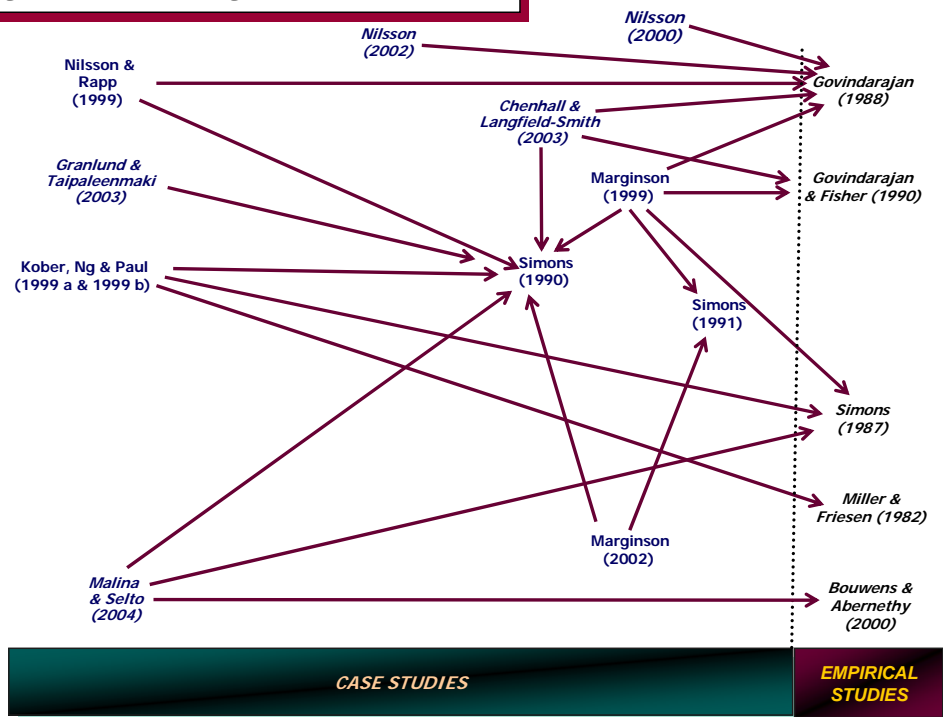
The nine case studies reviewed contain a total of twenty one references to other research specifically examining aspects of the MCS – strategy relationship. These linkages are depicted in *Figure 5*.

**\*\*\* Insert Figure 5 here \*\*\***

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<sup>11</sup> Although Chenhall & Langfield-Smith (2003, p. 137) do acknowledge alternative theoretical perspectives such as agency and motivation theories, may also contribute to explaining the phenomena observed.

**Figure 5: Linking Case Studies**



Of these twenty one references, eleven refer to either the empirical or case study research of Simons (1987, 1990, 1991). Much of the knowledge contributed by these three studies relates to the use rather than the selection, design or configuration of MCS in the organisations under investigation.

For example; Marginson (1999, p219) argues that although the model of control proposed by Simons (1991) was incomplete as it failed to adequately explain the role of informal controls in strategy formulation and implementation at Telco, these informal controls “align well with Simons’ belief systems”; Marginson (2002) in investigating how performance measures are used, finds support for Simons’ (1991) notion of interactive and diagnostic control, and “managerial perceptions of MCS are a crucial factor in determining the effects that MCS may have on a managers’ strategic activities” (Marginson, 2002, p. 1027); Nilsson & Rapp (1999), base one of the theoretical premises of their study on the suggestion that MCS must be designed to meet the need for information generated by a particular strategy. Their finding that “the effect of the control system at Bahco Verktyg was to reduce uncertainty arising from the differentiation strategy through reducing the amount and content of information at the management level” (Nilsson & Rapp, 1999, p.86), is consistent with the findings of Simons (1990) and Simons (1991); Kober, et al, (2003), provide support for the findings of Simons (1987), in that both formal and informal MCS, and their use changed with a change in strategy over time. Granlund &

Taipaleenmaki, (2005) provide evidence to indicate that the four levers of control proposed by Simon (1995) could be seen as important in the NEF context.

Malina & Selto (2004) in particular directly test the finding by Simons (1987) that firms following a more conservative strategy place more emphasis on cost control than those following a more entrepreneurial strategy. Chenhall & Langfield-Smith, (2003) corroborate the finding of Simons (1990), that open and flexible MCS are more appropriate for organizations facing urgent needs for high levels of strategic change, and Simons (1995) that, to generate cooperation in developing and implementing strategies, controls should focus on innovative efforts rather than on the final results or outcomes of innovative effort.

In addition to the support provided to the findings of Simons (1987, 1990, 1991), links between the case studies reviewed reveal a consistency in findings, which extend the work of Simons and which may also be summarised in the form of the following proposition:

- *The extent of influence that MCS have on both strategy formulation and strategy implementation varies depending on the way in which MCS are designed as well as the way in which MCS are used.*

#### **4. Implications of research findings and approaches**

Having identified the respective contributions and relationships of these studies to advancing our knowledge in terms of their findings, and also in terms of the two classificatory frameworks, the attention of this paper is now directed to revisiting two questions:

- What is our knowledge in this area to date?
- What are the boundaries of our understanding?

##### **4.1 Our knowledge to date**

From the preceding discussion, three broad propositions may be advanced based on a comparison of the findings of empirical research, and case studies.

These propositions taken collectively may be considered to reflect our extant knowledge in the area.

- *The design of MCS is dependent upon the particular strategic orientation adopted by the organisation; (Chung, 1996; Shih & Yong, 2001; Bouwens & Abernethy, 2000; Chung et al., 2000; Moores & Yuen, 2001; Davila, 2005; Auzair & Langfield-Smith, 2005).*

- *There is a match between particular strategic orientations and particular MCS designs which enhances performance. (Chenhall & Langfield-Smith, 1998, 2003; Baines & Langfield-Smith, 2003; Bisbe & Otley, 2004; Henri, 2005).*
- *The extent of influence that MCS have on both strategy formulation and strategy implementation varies depending on the way in which MCS are designed as well as the way in which MCS are used. (Abernethy & Brownell, 1999; Nilsson & Rapp, 1999; Nilsson, 2000, 2002; Marginson 1999, 2002; Kober, et al, 2003, Granlund & Taipaleenmaki, 2005).*

There appears to be considerable consistency in the conclusions reached by both empirical and case study research. Both empirical research and case studies suggest that differences between MCS under different strategic orientations do exist, and that in addition to enabling strategy implementation, MCS also appears to influence strategy formulation. Empirical findings suggest that, consistent with contingency theory, there appear to be particular MCS configurations or designs which enhance performance depending on the strategy pursued by organisations. Case study research augments this argument by stressing the use of MCS as well as the design of MCS is of primary importance in strategy implementation. Moreover, informal rather than formal MCS designs may be more significant in determining the efforts of managers. Unlike the empirical studies, however, case study findings suggest that the content of strategy does not appear to be critical to understanding the nature of the relationship between strategy and MCS, thereby reinforcing the observation of Langfield-Smith (1997, p. 224).

Notwithstanding these points, a comparison of these three propositions with the findings of Langfield-Smith (1997) reveals that the advances we have made in our understanding are essentially limited. Our knowledge of the MCS-strategy relationship as it applies in different contexts may certainly be thought to have been extended. However, our understanding of why and how the relationship operates beyond particular contextual settings is still comparatively underdeveloped, and it is to a consideration of why this might be that the attention of this paper is now directed.

#### **4.2 Boundaries of our understanding**

Using the Luft & Shields (2003) and Keating (1995) frameworks as the analytical lenses through which to view the studies reviewed, the boundaries delineating the limits of our understanding of the MCS - strategy relationship can be identified and appear to emanate from two broad sources. First; the inconsistencies in which the key constructs, MCS and strategy, are operationalised defined, or conceptualised; and second; modelling of relationships investigated.

#### 4.2.1 Operationalisation of key constructs

In comparing and contrasting research findings and designs, it seems reasonable that the concepts, MCS and strategy should possess a degree of consistency and uniformity across studies. As is obvious from the preceding discussion, such consistency and uniformity in the meaning of these concepts is not readily evident in the literature.

- *Strategy*

A first impediment, associated with the strategy construct is, quite simply that, “a precise definition of strategy is illusive” (Chenhall, 2005, p.11). There seem to be as many variations to a definition of this construct as there are different researchers wishing to examine or address different aspects of it, and, as has been outlined in this paper, numerous taxonomies have been applied or developed by researchers to operationalise this construct. However, a number of scholars have suggested that caution is required in the use of strategic typologies (Chapman 1997; Malina & Selto, 2004; Chenhall; 2003). The principal reservation advanced by these authors is summarised succinctly by Chapman (1997, p.190), in that, “strategy is reduced from a changeable and incompletely defined set of organisational behaviours, to four stereotypes.” Nevertheless, in addressing this problem, Chapman (1997, p. 190) observes there is a necessary trade-off between the qualities of simplicity, generality and accuracy, and contends that, “one of these three qualities must always be missing in any piece of theoretical work, and that problems in theory development may be attributable to the failure by researchers to recognise this point”. Thus rather than invalidate the use of typologies as a means by which strategy may be operationalised, these cautions serve as a qualification on the use of typologies generally.

A number of writers (Chenhall, 2003; Langfield-Smith, 1997; Simons, 1990, Dent, 1990) have suggested that there are strong similarities in the various typologies which have been postulated by researchers to categorise strategy types. So, mindful of the caution advised by Chapman (1997), in examining at least the strategy construct, it would seem fruitful to seek common characteristics in strategic typologies, and then use them as a basis for operationalisation or conceptualisation of this variable<sup>12</sup>..

A second limitation revealed by a comparison of the studies reviewed relates to the nature of strategy. Traditionally, strategy is viewed as a statement of intent which is proactive, consciously, formally and rationally planned prior to decisions and actions in a sequential process of formulation followed by implementation.

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<sup>12</sup> In fact, Langfield-Smith (1997, p.212) presents a particularly elegant three-dimensional theoretical framework which integrates the strategic variables associated with the typologies of Miles & Snow (1978), the strategic positions advocated by Porter (1980), and the strategic missions described by Gupta & Govindarajan (1984). This approach for example might be used by researchers in this area.

(Langfield-Smith, 1997). In contrast, Mintzberg (1978, 1988), advocates an alternate view by drawing a distinction between intended strategy and realised strategy. Mintzberg (1978) argues that realised strategies emerge through events and environmental interactions incrementally. As such they may be inferred through history as organisational activities culminate to exhibit a consistency or trend. Thus, intended strategies may not always be realised – they may be premised on incomplete, inaccurate or unrealistic information, environmental circumstances may change, or plans may simply change in the process of implementation. Similarly, realised strategies may develop from those intended strategies or may emerge unintentionally. That is, minor decisions and actions may culminate in unintended strategies. With the notable exception of Simons (1994, 1995, 2000), researchers have appeared to have neglected this distinction between intended, emergent and realised strategy. This may contribute to difficulty in understanding the role played by MCS in formulating as well as implementing strategy.

A third limitation relates to the way in which strategy has been conceptualised, and is illustrated by the distinction drawn by Chenhall (2005) between content and process approaches to help develop understanding of existing MCS - strategy research. According to Chenhall (2005, pp. 11-12), “content approaches tend to be concerned with the product of the strategy process”. Content approaches are concerned with what is or what should be in order to lead to optimal organisational performance. Although also concerned with the content of strategy, “the interest in process approaches is in how the process influences the content of strategies, and how the content influences process” (Chenhall, 2005, p. 12). Process approaches typically identify and investigate implications relating to strategy formulation and strategy implementation, intended versus emergent strategies, the dynamic relationships between strategic position, resources and outcomes, and, issues relating to strategic change. In the context of the research reviewed in this paper, it is clear that both content and process approaches have been used by researchers. For example, Nilsson & Rapp, (1999); and Baines & Langfield-Smith, (2003), employ a process approach to strategy, whilst the remaining studies adopt an approach which is primarily content focussed. As Chenhall (2005) observes, although both content and process approaches may be applied in the understanding of the MCS-strategy relationship, the nature of the issues differ the implications being that findings adopting different approaches may not be entirely comparable.

Finally, the resource based view (RBV) of strategy has, over the past decade, become one of the standard theories to explain the source of competitive advantage and the performance differences among firms over time. The significant role of internal organisational resources in facilitating organisational adaptation to its external environment, and the implications for management control is recognised by numerous scholars (for example; Baines & Langfield-Smith, 2003; Henri, 2005; Chenhall, 2005). Yet despite considerable interest in the relationship between MCS and strategy, the management accounting

literature has, with the exception of Henri (2005), and, to an extent, Baines & Langfield-Smith (2003), devoted limited attention to the RBV of strategy and the implications for MCS design and use. In short, it may be that the management accounting literature can be considerably informed by contemporary strategic management literature in expanding traditional conceptualisations of strategy and in the design of research which engages with this more contemporary perspective.

- *MCS*

In addition to an inconsistent classification of strategy, the way in which MCS is operationalised and measured has also varied between both empirical and field-based studies. This is understandable, given the variety of research questions and research aims that have been investigated. Moreover the apparent diversity in classification is desirable, as it has served to extend our understanding of MCS as it relates to strategy across a range of contexts. However the corollary to the variation in the number and type of controls that have been researched is the difficulty in establishing a coherent body of knowledge (Langfield-Smith, 1997, p. 226).

The apparent absence of a consistent approach to operationalising and measuring MCS may not however, be a critical problem in the examination of the MCS- strategy relationship. This claim is based on the observation of scholars (for example, Auzair & Langfield-Smith, 2005; Chenhall, 2003; Langfield-Smith, 1997; Otley, 1994) who suggest that a broader rather than a narrower definition of control is favoured. These scholars either explicitly or implicitly argue that, having progressed from a primarily accounting-oriented, formal view, MCS should now be regarded as comprising a much broader set of controls to include both formal as well as informal approaches. As Simons (1990, p.142) asserted, “management theorists must strive to understand better the dynamic relationship between strategy and management control processes. This means opening up the meaning of management control to a broader notion that builds upon guidance rather than coercion, and on learning as well as constraint. We need, in fact, a better language to describe management control processes. Control systems are used for multiple purposes: monitoring, learning, signalling, constraint, surveillance, motivation and others. Yet we use a single descriptor – management control systems – to describe these distinctly different processes. Management control theorists also need a precise vocabulary to develop and communicate the concepts necessary to describe complex organisational phenomena”.

A prime example of the difficulty in comparing and contrasting MCS – strategy research due to inconsistent conceptualisations of MCS consistently lies in distinguishing between the *design* and the *use* of MCS. Again, this is an issue recognised by Simons (2000) in discussing the role of MCS in formulating intended as distinct from emergent strategy. The implications in distinguishing between the design as opposed to the use of MCS may be considered to be a

salient finding by MCS- strategy researchers over the past decade (Langfield-Smith, 1997; Simons, 1994, 1995, 2000; Marginson, 1999, 2002; Nilsson & Rapp, 1999). The lesson to be learned from this finding is that if generalisations about the role and function of MCS as it relates to strategy are to be made, then the comparisons upon which they are based need to be very clearly defined and specified. In particular, implications arising from the design of MCS as distinct from the use of MCS should not be confounded.

#### *4.2.2 Modeling of relationships investigated*

The value of the classificatory framework proposed by Luft and Shields (2003) is to recognise and accommodate variations in variable definition and interrelationship so as to enable a more accurate identification of generalisable findings from a comparison of empirical studies.

Similarly, the analytical framework provided by Keating (1995) classifies the range of approaches adopted in case-based research, identifies the predominant scope of this research, and reveals the different emphases of findings of researchers. In so doing, this framework provides a vehicle whereby the comparative contribution of the particular study may be located in the context of the extant knowledge in MCS - strategy research. This enables the compilation of a broad "picture" representing our extant knowledge in this area as derived from case-based research efforts.

The Luft & Shields (2003), and Keating (1999) frameworks used in this paper suggest two broad impediments to our understanding of the MCS – strategy relationship; structural relationships; and causality.

- *Structural relationships:*

The management accounting literature has long maintained that one of the primary roles of MCS is facilitating the implementation of strategy (Anthony, 1965; Simons, 1991; Marginson, 1999; Kober, et al, 2003, Anthony & Govindarajan, 2004). More recently, MCS have been recognised as also playing a potentially instrumental role in the formulation of strategy (Langfield-Smith, 1997; Chenhall, 2003; Kober, et al, 2003). The works of Kober, et al, (2003), Marginson (1999, 2002) and Nilsson & Rapp (1999) have alluded to the propensity of a 2-way interaction, thereby providing support for the dynamic nature of the MCS - strategy relationship, however, on the basis of the studies reviewed, this aspect of interaction has yet to be adequately explored in the literature.

- *Causality*

Chenhall (2003, p. 156 ) notes "contingency-based MCS research has, in the main, been survey based and this tends to limit the scope of the studies to consider situations involving unidirectional relationships". All the empirical

studies reviewed in this paper implicitly assume unidirectional relationships. Moreover, these studies adopt linear additive models which examine the association of various elements of MCS with outcomes or of context with MCS. With the exception of Henri (2005), Auzair & Langfield-Smith (2005), and Davila (2005), the studies reviewed seek to provide separate arguments for each variable acting in isolation with no attention to the explicit relationship between the explanatory variables (Luft & Shields, 2003). However, the implications of bi-directionality or reverse causation of variables (where independent variables determine a dependent variable which then determines the independent variables), and multicollinearity (where two or more independent variables are highly correlated with each other), has been noted as a potential methodological weakness of empirical studies (Govindarajan & Fisher, 1990; Langfield-Smith, 1997, Luft & Shields, 2003). The failure to examine the potential effects of such implications remains a limitation of the majority of empirically – based research.

This limitation is likely to be addressed by acknowledging the potential interaction between variables of interest which enable multiple relationships to be considered within a single analysis. Rather than designating particular variables as dependent and independent, the use of structural equation modeling for example, differentiates between exogenous and endogenous variables. “SEM has a unique ability to simultaneously examine a series of dependence relationships (where a dependent variable becomes an independent variable in subsequent relationships within the same analysis) while also simultaneously analysing multiple dependent variables” (Shook, et al., p. 397). Such an approach is likely to expose insignificant relationships that would not have been revealed by a more selective correlation or regression analysis, and recognises that strategy adopted, strategy formulation, strategy implementation, MCS design, and MCS use do not impact independently but rather, each of these factors work concurrently to influence each other (as well as organisational performance). More recent studies (for example, Baines & Langfield-Smith, 2003; Auzair & Langfield-Smith, 2005; Henri, 2005) have incorporated this approach within their research designs resulting in compelling results.

## **5. Directions for Future Research**

Further exploration beyond the boundaries outlined in the above section in effect, represents an agenda for future MCS – strategy research. Specifically, it is contended that five broad avenues are likely to extend our understanding of the MCS-strategy relationship, and therefore warrant further attention by researchers. These avenues relate to: operationalising strategy; operationalising MCS; consistently conceptualising MCS and strategy; determining the “proper” fit between MCS and strategy; and, recognising the dynamic nature of the MCS – Strategy relationship. It is towards a consideration of these avenues that the attention of this paper will now be directed.

### *5.1 Operationalisation of strategy:*

Three opportunities for further attention which focus on how the construct of strategy is treated by researchers are apparent from the analysis conducted in this paper.

First, operationalisation of strategy might consider frameworks which, incorporate or explain alternate typologies previously used in research efforts to date. Langfield-Smith (1997, p.212) presents a particularly elegant three-dimensional theoretical model which integrates the strategic variables associated with the typologies of Miles & Snow (1978), the strategic positions advocated by Porter (1980), and the strategic missions described by Gupta & Govindarajan (1984). This approach, for example, might be used by researchers in this area.

A second related issue to the operationalisation of strategy is the explicit distinction between intended and emergent strategy and how MCS affects and is affected by this distinction. With the (notable) exceptions of Simons (1994, 1995, 2000), and Henri (2005), researchers have appeared to have neglected this distinction between intended, emergent and realised strategy. This may have contributed to the difficulty in understanding the role played by MCS in formulating as well as implementing strategy, and is an avenue of research that warrants further attention, particularly in terms of attempting to operationalise emergent strategy.

Third, given the apparent attention that has been directed to the RBV of strategy in the strategic management literature, research which seeks to build upon the work of Baines & Langfield-Smith (2003), and (particularly), Henri (2005) by extending the interface between MCS and strategy with the application of an RBV framework, is therefore justifiable and, it is suggested, a priority for investigation in this area.

### *5.2 Operationalisation of MCS:*

Two opportunities relating to the operationalisation of MCS exist for consideration of future researchers.

First, methods to operationalise MCS, could replace the traditional “shopping list” approach which simply tests the use or design from an inventory of possible controls, with an approach which conceptualises MCS as a multi-dimensional construct accommodating a wider range of formal as well as informal MCS. The instrument developed by Auzair & Langfield-Smith (2005) is an excellent example of how this might be achieved in practice, and future researchers might adopt or adapt this instrument in their investigations.

Second, as is the case with the differentiation between intended and emergent strategy as discussed above, with the (notable) exceptions of Simons (1994, 1995, 2000), and Henri (2005), researchers have appeared to have neglected the

implications associated with distinguishing between the use and the design of MCS. Studies which direct further attention to this area may resolve apparent ambiguities that have been found in findings to date.

### *5.3 Consistency in conceptualising MCS and strategy:*

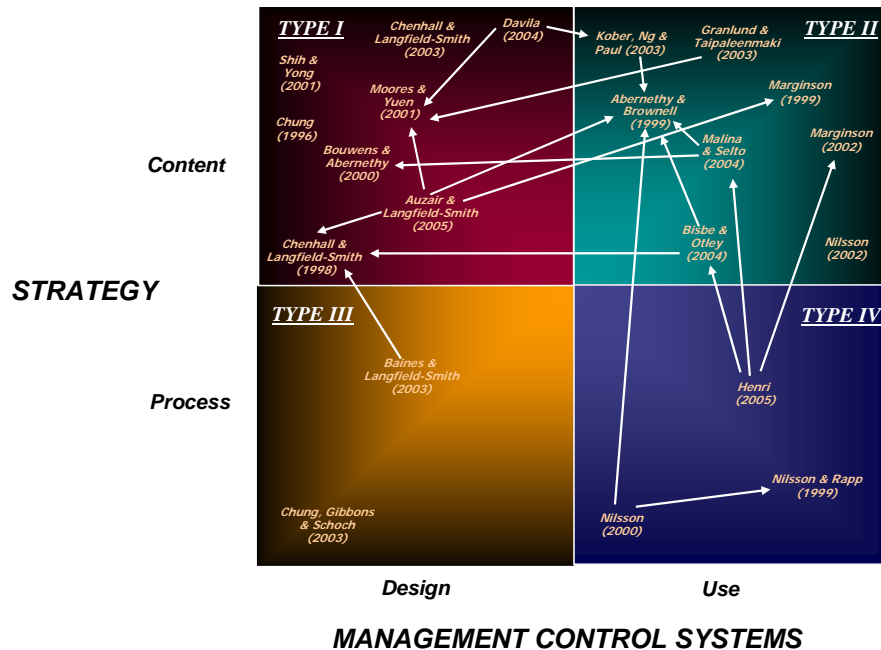
Consistent with the suggestions of sections 5.1 and 5.2, researchers might consider explicitly distinguishing between content and process approaches to conceptualisation of strategy *and* whether the design or the use of MCS is the focus of their chosen research design. This might be achieved by consideration of the proposed framework for classifying MCS-strategy research as depicted in *Figure 6*.

By differentiating between the parameters of strategy content, strategy process, MCS design, and MCS use, *Figure 6* suggests that the MCS-Strategy research in fact comprises four independent, but mutually related types of study. These study categories are designated Type I (strategy content and MCS design), Type II (strategy content and MCS use), Type III (strategy process and MCS design), and, Type IV (strategy process and MCS use). The framework argues that studies are comparable within rows, or within columns, but not between rows or columns. For example, Type I studies are comparable with Type II and Type III studies, but not with Type IV studies. Similarly, Type II studies are comparable with Type I and Type IV studies, but not with Type III studies; Type III studies are comparable with Type I and Type IV studies, but not with Type II studies; and Type IV studies are comparable with Type II and Type III studies, but not with Type I studies.

This proposed framework possesses four potential benefits to researchers. First, it serves as a useful classificatory framework which assists in distinguishing between four types of research undertaken in this area. Second, through its use, it is possible to avoid comparisons with studies that do not focus on similar aspects of MCS and strategy. Third, it can provide an indication of broad gaps in knowledge. Fourth, it is likely to assist researchers avoiding claims that their findings are contradictory when this is not necessarily the case, and/or incorrectly arguing that their results are strongly supported by previous studies. Finally, within the scope of each research type, the framework can assist researchers to explicitly discuss whether and how the particular study can be related to other research that has been predicated on alternate conceptualisations of strategy and/or MCS.

**\*\*\* INSERT FIGURE 6 HERE \*\*\***

**Figure 6: Proposed framework for classifying MCS–Strategy Research**



Source: Tucker, B., Thorne, H., & Gurd, B. (2006)

As an example of the application of this framework, the 21 studies reviewed in this paper are mapped according to the four MCS and strategy parameters.

What is apparent is that all the studies restrict comparisons with other studies within the same row or column. That is, studies focusing on MCS use draw on other studies focusing on MCS use; studies focusing on MCS design draw on other studies focusing on MCS design; studies focusing on strategy content draw on other studies focusing on strategy content; and studies focusing on strategy process draw on other studies focusing on strategy process. Avoiding comparison with studies beyond the row *and* column of the matrix ensures the construct validity of these studies. The studies reviewed in this paper have contributed to our knowledge primarily in terms of strategy content and MCS design or MCS use. Studies investigating strategy process and MCS design or MCS use have been less extensively examined, and studies investigating MCS design and MCS use have been fairly equally distributed. Research which relates the design of MCS to the use of MCS, or how the content of strategy relates to the process of strategy (in terms of MCS) has been limited. Perhaps by restricting our attention in this way, potential resolution of ostensible discrepancies, inconsistencies or ambiguities in findings have been sacrificed. In any event, the framework clearly illustrates a potentially rich avenue of investigation lies in examining the interface between MCS design, MCS use, strategy content and strategy process.

#### *5.4 Determining the “proper” fit between MCS and strategy:*

The traditional perspective on the MCS-strategy relationship argues that MCS must “fit” the firm's strategy. This implies the strategy is *first* developed through a formal and rational process, and this strategy then *drives* the design of the organisation's MCS. As discussed above, the past decade has seen the acceptance by researchers of an alternate view that strategies *emerge* through trial-and-error and ad hoc processes, which are significantly influenced by the organisation's MCS. In this perspective, MCS can *influence* the strategy formulation process and thus, to some extent, drive the firm's strategy. Future research efforts might explore both perspectives as well as their implications in terms of the design and operation of MCS. However, potential issues such as bi-directionality between dependent and independent variables, multicollinearity of contextual variables, and relaxation of the assumption of linearity between dependent and independent variables have been recognised by numerous scholars (notably; Langfield-Smith, 1997; Chenhall, 2003; Govindarajan, 1988; Govindarajan & Fisher, 1990, Luft & Shields, 2003, Gerdin & Greve, 2004; Kober, et. al., 2003) as significant considerations. Notwithstanding, the particular implications associated with these conditions, these issues have (curiously) not been explicitly investigated to a significant extent. Determining the “proper” fit between MCS and strategy however, might be relatively easily accommodated through the use of structural equation models, using software packages such as EQS, LISTREL, AMOS and PLS, which enable latent variables to be constructed from multi-item questionnaires and to identify, simultaneously, statistical significance with multiple dependent variables. Such an approach could also be expected to describe fit by testing multiple fits simultaneously, involving a wider variety of dimensions of strategy and MCS as they influence performance, and examining the effects of experimentation with non-recursive models, for example. The dynamic, 2-way interaction between MCS and strategy formulation and strategy implementation might also provide an opportunity for researchers to further explore the implications of intended and emergent strategy and the effects both on and by MCS using these more sophisticated analytical techniques.

#### *5.5 Recognising the dynamic nature of the MCS – Strategy relationship:*

While contingency research highlights the importance of achieving a match between strategy and MCS, much of the empirical literature has (understandably) concentrated on cross-sectional analysis. Consequently, studies have thus provided a static representation of the relationship, and precluded an examination of the complexity resulting from the dynamic nature of the relationship. Longitudinal case studies have the advantage of incorporating this frame of reference more easily. The work of Marginson (1999, 2002), Moores & Yuen (2001), Kober, et al (2003) and Davila (2005) are examples, in suggesting that the use of MCS, the design of MCS configurations, as well as the inherent nature of strategy formulation and implementation represent ongoing developmental processes, with particular implications associated with these constructs at different stages in the life-cycle, or in the event of strategic change over time. The role of longitudinal studies as an interpretive mechanism through

providing a deeper and richer meaning to the phenomena studied is well established (Ryan, Scapens & Theobald, 2002; Brownell, 1995), and acknowledged by both empirical as well as case study research in the MCS – Strategy area. In the studies reviewed in this paper, all but three (Chung, 1996; Nilsson & Rapp, 1999; Shih & Yong, 2001) explicitly call for further research to adopt a longitudinal or interpretive perspective. In so doing, these researchers provide additional support for the observation that , “in studying MCS and strategy, the interactions are complex and perhaps only in-depth research can help us understand the complex nature of these relationships... particularly if we recognize that strategy is an evolving and multifaceted concept” (Langfield-Smith, 1997, p. 228). Future approaches to research which adopt a longer term view of the MCS-strategy relationship, or attempt to identify and explain the dynamic nature of the relationship is likely to provide much needed additional evidence in this area.

#### *5.6 Consideration of the relationship in non-commercial contexts:*

The understanding we have currently attained about the MCS – strategy relationship has been gathered primarily from research within the commercial sector. Importantly, and perhaps surprisingly, the MCS- strategy relationship as it applies in contexts other than the commercial sector has been largely ignored by research efforts to date. How our current understanding of the MCS – strategy relationship translates to other sectors (such as public or nonprofit, for example), would also not only prove interesting, but also contribute to our emerging knowledge in this area.

## **6. Conclusion**

This paper has sought to bring together insights provided by empirical as well as case-based MCS – strategy research undertaken over the past decade in order to achieve two aims. First, to consolidate our understanding of this relationship, and second, to more clearly identify those areas which remain or have emerged as being unclear. As a consequence, this paper contributes to our understanding of this area by proposing a research agenda which attempts to build upon what we *do know* by addressing what we *do not know* about aspects associated with this complex and increasingly investigated relationship.

In recognition of the differing objectives and scope of empirical as distinct from case-based research, the analytical framework provided by Luft & Shields (2003) and the classificatory framework suggested by Keating (1995) have been used to compare and contrast empirical and case-based studies respectively. The application of these frameworks to the twenty one studies reviewed enables our knowledge of the MCS-strategy relationship to be synthesised and represented in the form of three propositions, namely;

- *The extent of influence that MCS have on both strategy formulation and strategy implementation varies depending on the way in which MCS are designed as well as the way in which MCS are used;*

- *The design of MCS is dependent upon the particular strategic orientation adopted by the organisation;*
- *There is a match between particular strategic orientations and particular MCS designs which enhances performance.*

The focus that seems to have been adopted by researchers over the past decade has been to investigate the MCS-strategy relationship in a wide diversity of contextual settings. As such, extant knowledge may be said to be “broad” but not “deep”. The largely confirmatory research reviewed in this paper has informed us to a considerable extent about the “what” and “how” of the MCS-strategy interface, but appreciably less about “why” this occurs. Consequently, it is contended that although considerable inroads have been made in our *knowledge*, our *understanding* has progressed at a less rapid rate.

This paper has argued that the boundaries of our knowledge reflect not only the methodological limitations observed by Langfield-Smith (1997), such as the conceptualisation, operationalisation and measurement of key constructs, but also fundamental issues of research aims and design. Such issues which include further exploration of the interface between strategy content and process, and MCS design and use; and the dynamic nature of the MCS-strategy relationship, represent serious consideration by MCS-strategy researchers. The implication is that whilst, research designs remain broadly consistent in terms of operationalisation and conceptualisation, progression of our knowledge will remain incremental. A quantum leap in our understanding of this area may be greatly facilitated by adopting more sophisticated approaches to determining “fit” between MCS and strategy, and critically evaluating and reconciling alternate views of MCS and strategy adopted by previous researchers, through an attempt to unify the concepts of MCS use, MCS design, strategy content and strategy process from both a static as well as a dynamic perspective. These aspects of the MCS – strategy relationship represent potentially rich avenues for future investigation by researchers in this challenging area, and warrant our attention, perhaps over the next ten years.

~ End ~

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