

**Management Control Systems and Managerial
Dysfunctional Behaviour: An Empirical Study of
Direct, Intervening and Moderating Effects**

by

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fulfilment for the degree of Doctor of Philosophy.**

**School of Management and Business
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To Marie-Therese, Kamini and Darling Wanda

For their support, love and affection

DECLARATION

This work has not been previously been accepted in substance for any degree and is not being concurrently in candidature for any degree.

.....
Teerooven Soobaroyen
September 2007

STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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ABSTRACT

This study considers the perspective that Management Control Systems (MCS) have a general impact on managers' extent of dysfunctional behaviour. More specifically, this study models, and empirically tests, the effects of several control systems, namely Standard Operating Procedures (SOP), Budgetary Participation (BP) and Reliance on Accounting Performance Measures (RAPM) on two 'broader' forms of dysfunctional behaviour (gaming and information manipulation). Furthermore, task uncertainty (TU) and the superior's style in the use of controls (diagnostic vs. interactive - INT) are the first two selected contextual variables, with MCS modelled as an intervening mechanism between these contextual variables and dysfunctional behaviours. In addition, insights from the institutional / legitimacy perspectives are used to develop a third contextual variable - known as the legitimating nature of control systems (LNC), as perceived by managers – to be separately modelled as a moderating variable.

Based on 130 responses of functional managers from a sample of Australian manufacturing companies, the findings regarding SOP provide new evidence on a much used control system in its role as a mechanism *constraining* gaming practices whilst the findings relating to BP are particularly significant in demonstrating the primarily motivational benefits of BP and its role in *defusing* both information manipulation and gaming practices. Notably, it brings empirical support to the theoretical arguments for participative budgeting (Shields and Shields, 1998) in contrast to claims that it encourages budget games (Hansen et al., 2003; Lukka, 1988). However, RAPM is found to have a significant *enhancing* effect on both the managers' extent of information manipulation and gaming activities but it does not have a significant intervening effect for TU. This is in sharp contrast to Hartmann's (2000; 2005) expectations on the central role of uncertainty in the RAPM contingency framework. The 'beneficial' nature of an 'interactive' superior, as argued in Simons (1995; 2000), is put into question with the finding that such an outlook might actually enhance managerial dysfunctional behaviour. The overall implications of this interactive style and the levers of control framework are also considered in the light of recently published studies. Finally, the findings suggest that a higher agreement to LNC interacting with the various control systems appears to *intensify* instances of dysfunctional behaviour. This also provides empirical evidence on the extent to which legitimacy arguments - rather than efficiency/rational ones - may be pertinent in understanding the role of controls in organisations.

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Chapter 1

Introduction to the Study

1.0 Preamble to the Study

Control systems seek to bring commonality of goals and process coordination within organisations. The need for goal sharing and coordination of activities and functions has become increasingly important among organisations in view of the increasing pressures on private companies to become more competitive and profitable to satisfy the requirements of their stakeholders. This continuous need for ever-improving bottom line performance indicators has largely influenced the internationalisation of business, in terms of seeking new markets and/or new sources of inputs, and in order to respond to the needs of customers. In parallel, government bodies and non-governmental organizations face new challenges from their own stakeholders, who demand more streamlined and efficient operations. A significant number of public services have now been privatised and subject to the same competitive pressures.

In such a context, public and private organisations alike have been reconsidering their internal processes. These processes are a key element to a better performance and/or efficiency, implying more congruence between the various sub-units and responsibility centres towards the organisation's goals and objectives. From this perspective, one can argue that control systems imply some level of regulation on the employees/agents' behaviour in an organization but also some level of empowerment to carry out their tasks.

In this respect, control systems involving tools such as budgets, variance reports, standard operating procedures, or performance-based remuneration or more recent techniques such as the balanced scorecard are specifically designed to ensure goal congruence. Thus, control systems facilitate the monitoring or regulating of the behaviour of directors, managers and other supervisory personnel in an organization. In contrast, contemporary management theories also suggest managers have been empowered in terms of having authority to take decisions whilst being accountable to the higher levels of management. With this increased empowerment, control systems are expected to keep a 'watchful eye' on directors, managers and other supervisory

personnel/employees. But considering the fact that there is always a 'day of reckoning' or eventually accountability for outputs and outcomes through the feedback mechanism of control systems, there remains a motive for the subordinate managers to engage in practices aimed at ensuring the desired picture on their performance, whether or not it represents actual performance.

In the context of an acute competitive environment, such practices can have very dysfunctional effects on the decision making processes and evaluation at the various levels of management. For example, top management relies on the reports and data provided by the various levels of management to take decisions and actions. If such reports provide biased information, smoothed data or if managers have deliberately engaged in 'gaming' practices to ensure a favourable set of numbers, then these could lead to misguided decisions and sub-optimal performance for the organization as a whole. It would therefore be critical for directors, senior managers and consultants to develop a more comprehensive understanding of the relationships between particular control system/devices and these dysfunctional behaviours of subordinate managers, and of the potential contextual variables which could influence such relationships.

Various forms of dysfunctional behaviours have been previously identified and management control systems (MCS) research identified some key terms/concepts such budgetary slack, managerial short term orientation, manipulation of performance measures specific to particular control systems or contexts (e.g. Onsi, 1973; Dunk, 1993a; Merchant 1990; Chow et al., 1996). The focus of this study is on more general instances - yet less researched ones - of managerial dysfunctional behaviour. More specifically, the study will consider the dysfunctional behaviour of 'gaming' and 'information manipulation'.

Hence, a key objective of this study is to investigate the existence and extent of such 'dysfunctional behaviour' that arises from the use of management control systems in organizations. Although there have been some empirical studies on the link between dysfunctional behaviour and control systems, the findings have not been conclusive (Jaworski and Young, 1992, p. 17; Van der Stede, 2000, p. 610; Marginson and Ogden, 2005, p. 436) and these studies have primarily considered one control system at a time (mainly budget-based). Consequently, dysfunctional behaviour appears to have been conceptualised in a restricted way and principally associated to budgetary slack. In

contrast, this study will model the effects of several control systems on several forms of dysfunctional behaviour¹ and will hence seek to identify and measure dysfunctional behaviour in a broader perspective.

In addition, the impact of contextual variables on the MCS-dysfunctional behaviour link will be examined. Following an extensive review of the mainstream literature, task uncertainty and superior's use of controls (diagnostic vs. interactive) are the first two selected contextual variables. This study proposes to use the path analysis technique to model MCSs as intervening mechanisms between contextual variables and dysfunctional behaviour. Hence, apart from the practical benefits mentioned earlier in developing a better understanding of dysfunctional behaviour for supervisory managers and MCS consultants, there are notable theoretical improvements in terms of considering various control systems and the proposed contextual variables. Chenhall (2003, p. 161) states that there is scope to persist with contingency-based research to uncover generalisable findings and it is believed that this study will contribute towards renewing the interest in this body of management accounting research.

Furthermore, Chenhall (2003) makes a compelling case for integrating more interpretive and/or critical elements in MCS research, based on alternative theories and propositions. In this respect, elements and insights from institutional theory have been used to develop a third contextual variable – known as the legitimating nature of controls, as perceived by functional managers - to be considered in this study as a moderating variable in the hypothesised relationship between MCS and dysfunctional behaviour. There has been very little empirical investigation on the impact of institutional factors in the MCS literature and this part of the study takes a more exploratory stance in developing insights as to how such variables could influence the use of MCS in organizations.

Finally, the quest for generalisable findings has also been a key impetus in the decision to collect data in a country (Australia) where a significant number of MCS studies were carried out.

¹ It would be important to note at this stage that a broad definition of dysfunctional behaviour could include illegal acts (e.g. falsification or forgery) but this study will only consider legal (but not necessary ethical) acts.

1.1. Management Control System (MCS)

There are diverse views on the nature, purpose and scope of MCS and the number of academic areas that research on this topic is clear evidence of such diversity. Organisational behaviour, accounting, management, public sector administration, and information systems are just some of these areas. Hence, the two following definitions may not be generally applicable ones but they certainly tie up to the challenges faced by organisations:

“A MCS is a set of interrelated communication structures that facilitates the processing of information for the purpose of assisting managers in coordinating the parts and attaining the purpose of an organisation on a continuous basis” (Maciariello and Kirby, 1994, p. 1)

“Management control is the process by which managers influence other members of the organisation to implement the organisation’s strategies. The system used by management to control the activities of an organisation is called its management control system.” (Anthony and Govindarajan, 1998, p. 17)

There are five implications that can be highlighted from these definitions. Firstly, MCS considers only management-level structures and hence focuses on managers’ interaction with controls. The main reason for such emphasis is related to the established notion that control is one of the four basic functions of the management process, others being planning, organising and leading (Anthony and Govindarajan, 1998). So, the manager, irrespective of his/her hierarchical level and the category of his/her responsibility centre (cost, profit or investment), is the focus of MCS studies².

Secondly, the finality in an MCS is traditionally towards organisational goals (or objectives), which can presumably be achieved or not, as measured by some performance indicators. Anthony and Govindarajan (1998) focus on the links between MCS and strategies but eventually the implementation and success of those strategies is also assessed by a performance measure. These performance indicators need not be financial ones, but have gradually been understood as a combination of financial and

² Although some aspects of organisational control system can clearly also apply to all non-managerial staff of a company.

non-financial measures, such as the one pioneered by Kaplan and Norton's (1992) balanced scorecard. More recently, Merchant and Van der Stede (2007, p. 25) refer to such controls as *results controls*, which are prevalent in most organizations.

Thirdly, whilst Maciariello and Kirby (1994) narrowly relate MCS to a set of communication structures, Anthony and Govindarajan (1998) view MCS as an influence process. These views are not contradictory but they indicate how individual control systems reflect several dimensions, which then will have different consequences at the organisational (company, division, department) and/or individual (manager) level. This study aims at exploring further this influence process but from the point of view of the possibly unintended consequences i.e. dysfunctional behaviour.

Fourthly, in spite of the positive aspects being highlighted in both definitions, control systems are constraining mechanisms. As later stated by Maciariello and Kirby (1994, p. 8), control systems involve "steering the organisation" and "bringing unity out of diverse efforts of subunits and or individuals". Managers, who traditionally exercise power and control, may resent the "straightjacket" characteristics of, and resist (or avoid) compliance to, MCS. Similarly, both the academic and professional literature refer to the use of 'tight' (or loose) controls, in terms of how far they are made congruent, specific and timely in relation to organizational objectives (Merchant and Van der Stede, 2007, p. 119)

Fifthly, while this is not explicit in both definitions, all the authors give predominance to the study of formal control systems (existing and established by the organisation) rather than informal ones³ (relationships developed by individuals or groups within an organisation). Formal control systems are easier to identify across organisations and time, easier to research and resulting findings can be, to a certain extent, generalised. In addition, virtually all the formal control systems are considered to have cybernetic properties i.e.:

"..a system in which standards of performance are determined, measuring systems gauge performance, comparisons are made between standards and actual performance, and feedback provides information on the variances."

(Fisher, 1995, p. 14)

³ For example, personal contacts and networks and peer pressures.

In light of this definition, it is without surprise that management accounting researchers have focused on the usefulness of financial-based management control systems, the most visible part being the budgetary process. However, the consequences of non-financial components of an MCS have also been studied. Two examples would be the effect of standard operating procedures (SOPs) and the effectiveness of decentralisation i.e. the delegating of authority and control to lower-level management⁴. But in most cases, the previous research questions have generally taken a very straightforward orientation: do these management control systems actually result in better organisational performance and/or more motivated managers? There have also been studies that considered the MCS as a dependent variable and thus researched the antecedents of MCS rather than their consequences i.e. what has caused management control systems to be in this particular state? Whilst these particular lines of research are important, the role of this inquiry would be aimed at bringing findings that are relevant to the main MCS research orientation for this study i.e. is the MCS adequate to detect and prevent dysfunctional behaviour or is it in fact encouraging such behaviour?

1.2. Accounting-led MCS Research

MCS is a generic term encompassing various individual control systems/mechanisms. As such, it would have been difficult to argue as to the adequacy of MCS in general and thus, management accounting research has given prominence to specific control components which one could refer to as management control sub-systems and management control mechanisms. These terms will be further defined in Chapter 2, but suffice to say that the budgetary process would be viewed as a control-subsystem, which can itself be broken down into various control mechanisms such as the extent of a subordinate manager's participation in budget/target setting. In fact, there has been more emphasis on the effectiveness and other possible consequences of similar control mechanisms in contrast to other 'higher levels' of MCS. However, the findings have not been very consistent at the outset. For example, whilst positive associations were expected and found between the level of budgetary participation and organisational performance, some studies actually observed negative relationships. Similar situations

⁴ Other examples of non-financial controls (including SOPs) can be integrated / viewed within Simon's (1995; 2000) levers of control framework, namely as part of belief, boundary and/or diagnostic systems. In addition, a recent MCS empirical study by Widener (2007) investigated the use of 'personnel' controls i.e. ex-ante control mechanisms often centered on human resource policies that help ensure personnel will perform in congruence with firm goals (2007, p. 380).

were noted in research on other control mechanisms such as the extent of reliance on accounting performance measures for performance evaluation (also referred to as RAPM or budget emphasis)⁵. Emmanuel et al. (1990, p. 160) consider budgetary planning and control as the most visible use of accounting information in the management control process. Budgets can serve multiple roles in organizations such as acting as a system of authorization, a means of forecasting and planning, a channel of communication and coordination, a motivational device, and a means of performance evaluation and control (Emmanuel et al., 1990, p. 162). However, research has mainly focused on the discrete steps in the budgetary process, mainly at the beginning and end of the typical budgeting cycle (Hartmann, 2000, p. 453).

In light of the inconsistent findings described earlier, management accounting research, under the influence of researchers such as Gordon and Miller (1976), Waterhouse and Tiessen (1978) and Otley (1980), resolutely evolved from a universalistic perspective - control sub-systems or mechanisms are either 'good' or 'bad', in relation to a pre-determined outcome variable - to a contingency perspective i.e. the relationship between a control sub-system is dependent upon certain situational variables faced by the organisation.

It would be important to note that MCS research has generally steered towards the positive consequences of MCS, such as performance, satisfaction, attitude or motivation, possibly and initially as a result of the 'positively posited' contingency fit propositions put forward by Otley (1978) - described in more detail later). Negative consequences have been, in comparison, less considered in cross-sectional empirical studies and more in case study contexts (e.g. Argyris, 1952, 1953; Hopwood, 1972). However, subsequently, the interest in dysfunctional behaviour grew with empirical studies that focused on 'proxies' of dysfunctional behaviour such as job-related tension (JRT) or stress (e.g. Hirst, 1983) and separate elements of dysfunctional behaviour such as smoothing/falsifying (Flamholtz, 1979), data manipulation and short-term orientation (Merchant, 1990; Chow et al, 1996), invalid data reporting (Hayes and Cron, 1988), and budgetary slack (Lowe and Shaw, 1968; Onsi, 1973). Other studies of 'dysfunctional

⁵ However, it has to be acknowledged there have been more recent MCS studies examining the combined and inter-dependent nature of various control systems as an organizational control package (Otley, 1980). In particular, Simon's (1995; 2000) work on the levels of control (LOC) provides a useful conceptualisation to study the relationships between the various types of MCS (e.g. Widener, 2007).

behaviour' in specific professional settings also emerged, which were labelled differently i.e. under-reporting of time and premature sign-off practices by external auditors (e.g. Alderman and Deitrick, 1982; Otley and Pierce, 1996; Pierce and Sweeney, 2004; 2006). Within the management control literature however, there appears to have been a more determined interest on the budgetary slack⁶ phenomenon (Dunk and Nouri, 1998; Fisher et al., 2002a; 2002b; Davila and Wouters, 2005) but particular in the case of slack, there have been arguments and recent evidence supporting the beneficial impact of budgetary slack (e.g. Van der Stede, 2000; Davila and Wouters, 2005).

The above might be construed as an attempt to paint an overall positive - and perhaps somewhat fatalistic - view of dysfunctional behaviour, as later implied by Argyris (1990), in his description/understanding of organizational and individual defensive routines⁷:

“Organizational defensive routines can lead people to feel helpless and cynical about changing them. This leads people to distance themselves from trying to engage the defensive routines in order to reduce them. As a result, organizational defensive routines not only become unmanageable (it is difficult to manage what is undiscussable), but they become the source of much distorted information. The distortion of the information is taken for granted because it is seen as necessary for the survival of the players as well as for the organization” (emphasis added, 1990, p. 506).

Furthermore, the reason for this apparent focus on the positive influence of controls may be due to an intrinsic and a subjective positive image that accountants have for MCS. Wilken (1989, p. 45) rightly stated that *“accountants tend to see control as a solution; sociologists as a problem”*. Indeed, the interpretive and critical accounting literature is replete of theoretical arguments and empirical evidence on how and why accounting/control systems are seen as ‘good’ rational-led legitimating devices (e.g. Berry et al., 1985; Covalleski and Dirsmith, 1988; Covalleski et al., 2006). Also, it appears that the more general phenomenon of dysfunctional behaviour, i.e. the intentional violation of control system rules and procedures (Jaworski and Young, 1992, p. 18) did not have a fundamental “appeal” within the empirically-led management

⁶ Budgetary slack may be defined as the deliberate manipulation of budgets/targets by the subordinate manager, in a bid to ensure easy attainment of the budget/targets.

⁷ Argyris (1990) uses the term organizational and/or individual defensive routines almost synonymously to the term dysfunctional behaviours. However, the word ‘defensive’ seems to suggest that it is a rational and natural (hence positive and acceptable) reaction to stimuli (e.g. threat) as opposed to the negative label of ‘dysfunctional’.

accounting literature – although certain elements of dysfunctional behaviour (as noted above) were being studied in more detail. In this respect, it is believed there is room for a more in-depth and cross-sectional empirical investigation in the unintended and dysfunctional consequences of control sub-systems/mechanisms, particularly as conceptualised in Jaworski and Young's (1992) paper.

1.3. Contingency Theory

Contingency Theory stems from research in organisational design. It suggests that "the best way to organise is contingent upon specific circumstances that the organisation finds itself in" (Ezzamel and Hart, 1987). The main contingency factors affecting organisational design would be environment, technology, age & size of organisation, and power distribution (internal and external).

The contingency theory of management accounting is drawn from the organisational literature and has been used to identify the variables that impact on the effectiveness of a firm's MCS. In other words, contingency theory asserts that there is an interaction between MCS control sub-systems (or mechanisms), contingent variables and organisational performance (or individual-based outcome variables such as motivation or satisfaction). In the words of Otley (1980, p. 84), the control sub-system/mechanism must "match or fit" with contingent factors affecting this particular organisation, to impact into the correct performance. Hence, a lack of "congruence" between a (or a set of) contingent variable(s) and the control sub-system/mechanism will have no, or at worst negative, consequences.

Thus, since the end of the 1970s, the contingency paradigm has dominated the management control systems literature. Whilst a number of "traditional" contingency variables (environmental uncertainty, technology, strategy, size) have been transposed to the MCS research area, a host of new variables were also drawn from the behavioural sciences area. Variables such as personality, stress, leadership style, national culture, organisational commitment and trust have been argued to be of relevance, in view of the potential interpersonal and psychological dimensions of management control systems. This has significantly expanded the number of research studies - whose methods were predominantly empirical and based on correlation and regression techniques – greatly assisted by the increasing access to computer and statistical software. The dependent

and independent variables are gathered from responses via mailed questionnaire surveys and are primarily interval-level data, sought across various industries (cross-sectional). For example, Shields and Shields (1998) reviewed 47 budgetary participation studies and 36 (77%) correspond to the above descriptions⁸. Paradoxically, important findings were made from case studies but have been deemed to be insufficient to be generalised and have hence led to more empirical demonstration (e.g. Marginson and Ogden, 2005, p. 451). Two often quoted examples of such findings are the impact of budgets on people (Argyris, 1952) and the relationship between MCS and strategy (Simons, 1990, 1991 and 1994). Whilst the use of survey methods and their related empirical techniques have led to considerable insights in the use of MCS, these methods and techniques have inherent limitations and interpretation issues which have affected the validity of some of the findings. Hartmann and Moers (1999; 2003) have highlighted a number of these issues in relation to the use of moderated regression analysis (MRA) in contingency-based research.

Furthermore, the multiplicity of contingency-based MCS research does not seem to have led to more consistent and coherent findings. Chapman (1997) claims that there is still a lack of an overall contingency framework, “...*leaving no obvious starting point for an explanation of an increasing body of often contradictory results*”. Fisher (1995, p. 45) concurs to this view and adds that both theoretical and empirical analysis in MCS research has been too piecemeal to generate a coherent frame of reference. For example, when locus of control (a personality trait) is empirically found to be a contingent variable in determining the effectiveness of budgetary participation (Brownell, 1981; 1982b), how can this finding be of interest in developing an overall contingency framework for MCS? Schoonhoven (1981) already highlighted this lack of overall coherence and considered that contingency theory:

“...is not a theory at all, in the conventional sense of theory as a well-developed set of interrelated propositions. It is more an orientating strategy or meta-theory, suggesting ways in which a phenomenon ought to be conceptualised or an approach to the phenomenon ought to be explained.”
(Schoonhoven, 1981, p. 350).

Schoonhoven’s perspective is a very crucial one since it clearly limits the “benefits” of the contingency paradigm. Indeed, contingency arguments have been used to justify the

⁸ The remaining studies are based on lab-experiments (17%) and field research or case studies (6%). Incidentally, lab experiments are also empirically based but data collection is made through observation of participants’ reactions to games, scenarios or other stimuli.

inclusion of a particular contextual variable in the effectiveness of MCS but in contrast, these arguments cannot be used to reject a specific contextual variable. This brings us to more recent calls for theory-based contingency research rather than simply testing whether a contingent variable is significantly interacting with the MCS sub-system.

Chenhall (2003, p. 157) correctly reminds his readers that the term contingency means that something is true only under specified conditions and there is no “one” contingency theory but rather a variety of theories that seek to explain and predict the conditions. In particular, he suggests that future MCS studies should use organizational theory as a coherent and rich basis for examining contextual factors. In this context, Chapman (1997) and Hartmann (2000) suggest that uncertainty, as conceptualised by Galbraith (1973), is a key concept when explaining and predicting the appropriateness of MCS. A second related concept, which was earlier identified by Simons’ (1991, 1994) case study research, is the superior’s interactive vs. diagnostic use of MCS. Simons (1991, 1994) was able to identify this particular behaviour in his study of a limited number of business unit managers who were involved in a strategic change process. Although Simons (1991, 1994) was focusing on the contingent impact of strategy on MCS, this nevertheless showed some links to Chapman’s (1997, p. 201-202) theoretical propositions for investigating uncertainty – in particular the proposition that one’s use of the internal accounting system would vary under different states of uncertainty. In spite of the fact that Chapman (1997) was most probably referring to a subordinate manager’s perspective, there is no reason why this cannot be transposed to the supervisor’s level. So far however, there have not been any recent empirical attempts to link Simon’s (1991, 1994) case study findings of interactive vs. diagnostic use to a cross-sectional context⁹.

The contingency paradigm has been regularly criticised and alternative theories have been put forward (e.g. Hopper and Powell, 1985; Scapens, 1994). Hopper and Powell (1985, p. 441) criticised contingency-based studies as they portray management in a technical role, matching organisational design to the dictates of contingent factors, but these studies tend to disregard the discretion possessed by key decision-makers and how values, beliefs and ideologies may influence choices. In the latter context, the inherent

⁹ However, during the write up phase of this thesis, a number of empirical studies have been recently published on Simon’s (1995) interactive use of controls e.g. Bisbe and Otley (2004), Tuomela (2005), Naranjo-Gil and Hartmann (2007), Henri (2006), and Widener (2007).

characteristics of rationality, objectivity, and neutrality for MCS may be less applicable. While Scapens (1994, p. 312) related these characteristics to the economically rational maximising behaviour of individual managers, Meyer and Rowan (1977) argue that organisational forms and procedures (including MCS) may also exist and interact for political and symbolic reasons. This represents a shift from the technically-oriented perspective to a more interpretive one - what is presented below as an institutional theory-based perspective

1.4. Institutional Theory-Based Perspective

Institutional theory contends that organisational environments are characterised by the elaboration of rules and requirements to which individual organisations must conform if they are to receive support and legitimacy (Scott and Meyer, 1983, p. 149). This conformity is achieved through isomorphism i.e. the resemblance of a focal organisation to other organisations in its environment (Deephouse, 1996, p. 1024). DiMaggio and Powell (1983, p. 147) have identified three mechanisms of the isomorphic process, namely:

- (i) *coercive isomorphism that stems from political influence and the problem of legitimacy,*
- (ii) *mimetic isomorphism resulting from standard responses to uncertainty,*
and
- (iii) *normative isomorphism, associated with professionalisation.*

According to Kondra and Hinings (1998, p. 744), institutional theory has taken a variety of guises but generally the central thrust has been to explain the isomorphism of organisational fields and the establishment of institutional norms. However, the concept of legitimacy is more of topical interest within the institutional paradigm. Legitimacy is “granted” by regulatory agencies, professional or trade associations, or generalised belief systems that have defined how specific organisations are to conduct themselves (Suchman, 1995). Therefore, organisational survival is as much related to technical efficiency and/or profitability as it is to legitimacy. In fact, one could even expect that for certain categories of organisations (such as public sector organisations) that legitimacy dominates technical rationality. For example, various governmental organisations pride themselves of having achieved ISO (International Standards Organisation) certification, which may be interpreted as indication of *potential* for efficiency rather than being efficient in itself. In a similar vein, Meyer and Rowan

(1991) argue that whilst organisations have incorporated a variety of rational procedures, processes and rules (including formal accounting systems), their primary reason for doing so was to maintain appearances and help confer legitimacy upon the organisation (cited in Carruthers, 1995, p. 315; also, referred to in Scapens, 1994).

The evidence as to the relevance of legitimacy compared to technical/economic value is diverse. Whilst authors such as Meyer and Rowan (1991) and Powell and DiMaggio (1991) have based their arguments on case study evidence, there has been recent empirical research into the validity of the legitimacy argument. For example, in a study of commercial banks, Deephouse (1996) found instances of isomorphism (i.e. banks conforming to business strategies adopted by other banks, irrespective of the impact on the individual bank's performance) and found evidence of a relationship between such behaviour and an increased media/regulatory endorsement (i.e. increased legitimacy). More revealingly, Staw and Epstein (2000) observed increased external legitimacy (as measured by increased reputation) but comparatively lower consequences on performance further to the adoption of a popular management technique (TQM - Total Quality Management) by a sample of Fortune 500 companies. However, cross-sectional empirical evidence involving MCS mechanisms and processes has yet to be uncovered. Nevertheless, there has already been very insightful case study research into the legitimising and ceremonial aspects of budgets, which are briefly considered below.

For instance, Berry et al. (1985) explored the use of accounting and controls system in the National Coal Board (NCB) and found a dual use of the systems internally (reflecting ambiguity and uncertainties) and externally (to convey an image of rationality and efficiency). This 'decoupling' was also observed in a study of nursing departments in Covaleski and Dirsmith (1983). Abernethy and Chua (1996) carried out a longitudinal field study of a large public hospital in Australia - during material changes made (amongst others) to its accounting control system - and concluded that some of the changes were attributed to institutional pressures coming from the regulators and professionals towards enhancing organizational legitimacy. Also, Hoque and Alam (1999) examined the relationship between newly established TQM practices in an organization and its Management Accounting Systems (MAS). They argued that TQM appeared to have been adopted for legitimacy reasons i.e. to gain acceptance from outside parties, whilst leading to a change in the MAS. Within the context of three non-governmental organizations (NGOs) in an African country, Goddard and Assad (2006)

identified the process of *navigating legitimacy*, whereby the NGOs adopt accounting and reporting practices (internal or external-led) to fit the specific demands and requirements of the donors and stakeholders. As a result, “donor-led” accounting practices and systems have become prominent in the studied NGOs to re-assert and enhance the organization’s credibility vis-a`-vis the donors. However, the emergence of these accounting mechanisms has not penetrated and influenced the operational aspects and the authors observe that there is little relevance associated to internal accounting information needs (2006, p. 395).

In addition, ‘ceremonies’, ‘myths’ and ‘rituals’ are also very much related to the institutional framework, whereby certain practices and policies within organizations are enforced without *apparent* rationale and presented in non-questionable fashion, even if these practices or policies may not be the most efficient or the most appropriate way to run the organization. Cyert and March (1963) already highlighted the ‘ceremonial’ or ‘ritualistic’ nature of the budgetary system and considered the budget as “...*both the substance and result of political bargaining processes that are useful for legitimising and maintaining systems of power and control within organisations*” (cited in Covaleski and Dirsmith, p. 1, 1988). In a similar vein, Pfeffer (1981) viewed that the objective and rational characteristic of the budgetary process will be primarily used to legitimise subjective and political decision-making processes. Brunsson (1989) used a number of case studies in the local government sector to illustrate the use of budget within the above-mentioned perspective. Similarly, Robson and Perez (1999) explored the budgetary participation process in a subsidiary and found instances of ritualistic and taken-for-granted behaviours by the various individual managers, especially related to the fact that decisions for budgetary allocations were already made and the budgetary participation was merely a ritual to commit the subordinates to the plan of action. Also, this case study research observed attempts by sub-unit or functional managers (e.g. Robson and Perez, 1999, p. 397-398) to enter in a ‘gaming’ process and the need to protect their own department. This confirms the possibility of legitimacy being an important concept not only for the organisation towards the ‘external’ environment, but also for sub-unit departments. Indeed, it was noted that the legitimacy concept could also be applied to the internal participants, as stated by Meyer and Rowan (1977, cited in Tiessen and Waterhouse, 1983, p. 263) in the context of management accounting systems (MAS):

“The application of socially sanctioned assessment criteria such as accounting performance measures serves the purpose of legitimising organisations with internal participants and external constituents. MAS performance measures, therefore, play an important ceremonial role.”

In conclusion, the concept of legitimacy appears to be a valid one within the realm of management control systems, but has been so far limited to budgetary practices in general. It clearly provides a potential additional variable to the contingency framework as a way to understand the variables influencing management control systems. It would thus be interesting to assess the empirical relevance of institutional-based variables in MCS within the existing contingency paradigm

1.5. Main Research Questions

In light of the various issues raised in Sections 1.2 to 1.4, the following research questions are of pertinence:

- (1) To what extent do particular types of management control systems generate or limit dysfunctional behaviour, amongst subordinate managers in the application of those sub-systems?
- (2) To what extent is the relationship between MCS sub-systems and dysfunctional behaviour influenced by contingency variables?
- (3) Do institutional theory-inspired concepts, as perceived by a sub-unit manager, moderate the relationship between MCS sub-systems and dysfunctional behaviour?

1.6. Objectives of Study

The objectives of the study are as follows:

- (1) To model and empirically test explanations of dysfunctional behaviour(s) among middle-level, functional managers arising from specific sub-systems of an MCS.
- (2) To extend the model and evidence to include the effects of two previously researched contextual variables, specifically task uncertainty and the superior’s interactive vs. diagnostic use of controls.
- (3) To identify and provide evidence on the effects of an institutional-theory led factor on the relationships between MCS and dysfunctional behaviour.

1.7. Scope of Research and Methods

As mentioned earlier, MCS is a generic term and this study will select specific management control sub-systems/mechanisms. The selected management control mechanisms are budgetary participation (BP) and reliance on accounting performance measures (RAPM). In view of the financial orientation of these two control mechanisms, a non-financial control sub-system, namely standard operating procedures, is also chosen. Since inter-relationships between these control sub-systems/mechanisms are not assumed in this study, their impact on dysfunctional behaviour, as moderated by contextual variables, will be considered individually.

BP and RAPM are the two sub-mechanisms that have been selected for this study on the grounds that there are still strong criticisms in terms of their lack of theoretical and empirical coherence within the contingency paradigm. For example, Hartmann (2000, p. 465) outlined the important symptoms of this absence of coherence in terms of the relatively large number of hypotheses not supported and the even lower success rate of studies aimed at replicating previous findings in the context of RAPM studies. In a similar vein, Shields and Shields (1998, p. 50) contend that research in participative budgeting has numerous micro and independent theoretical and empirical models, but is devoid of general or integrative models.

The selection of contextual variables has been considered after an extensive review of current theoretical and empirical arguments. Task uncertainty was viewed to be of considerable interest in light of the support expressed in the literature (Galbraith, 1973; Hartmann, 2000). In fact, in the case of budgetary participation studies, it was found that quite a number of contextual variables (such as functional area, environmental uncertainty, process automation, product standardisation and job difficulty) implicitly or explicitly related to task uncertainty. Hayes and Cron (1988) is one of the few studies that have examined the issue in the context of Zero-Based Budgeting (ZBB) practices. They predict an increase in dysfunctional behaviour as a result of higher task uncertainty but did not provide cross-sectional empirical evidence to support their claims.

The second contextual variable was identified by Simons (1987b, 1990, 1991, 1994) and adapted in Abernethy and Brownell (1997). Based on a series of case studies, Simons found that senior management used various components of MCS differently and labelled the use of controls as either being 'interactive' or 'diagnostic'. According to Abernethy and Brownell (1997, p. 191), a defining feature of the interactive use of controls is the continual exchange between top management and lower levels of management, as well as interactions within various levels of management across functions, with a view to promoting the development of new ideas, opportunities and initiatives and to facilitating organizational learning (Bisbe and Otley, 2004; Tuomela, 2005; Henri, 2006). By contrast, a 'diagnostic' use of control systems would imply less direct involvement of senior management and would typically require input of superiors only in 'exceptions' situations. According to Henri (2006, p. 533), a diagnostic use of control represents a 'negative' force because it focuses on mistakes and negative variances. This study will thus hypothesise that the superior's perceived style of use of controls will impact on the various MCS designs, thereby influencing the extent of dysfunctional behaviour.

The third variable would represent the institutional dimension and is inspired by the main concept of legitimacy. This study will hypothesise that the perceptions of subordinates concerning the purpose of control functions will indicate the extent to which legitimacy, rather than efficiency, is relevant in the organisation. Since the study focuses on functional middle managers, it will be proposed that respondents will be subject to institutional influences within the organization, subsumed within the construct of the legitimating nature of controls (as perceived by these managers), and which can be associated to the need to maintain appearances and rational behaviour within the organisation. The third contextual variable has been devised after a detailed review of the literature. Given the complexity of the issues, several questions and concepts were initially drawn up and tested. It is also noted there is no published study in the MCS domain which sought to empirically measure such a variable at a sub-organizational level. One key element in institutional or any interpretive theory is the "context-driven" nature of the theory. Questions were therefore aimed at capturing the context i.e. the perceptions on the purpose of control systems in organizations. Hence, it remains to be seen as to what is the dominant view amongst subordinate managers on the organization's motives in having a particular MCS ('legitimizing' or a 'rationality

motive'. It is contended that such perceptions would influence the managers' extent of dysfunctional behaviours.

The proposed empirical schema is therefore shown in Figure 1.1. The arrows denote the hypothesised relationships in summary form since there are several (three) control system variables and (two) dependent variables. The first model depicts the intervening relationship of MCS between the two contextual variables (superiors' use of controls and task uncertainty) and dysfunctional behaviour. The second (separate) model considers the moderating influence of the legitimating nature of controls on the relationship between MCS and dysfunctional behaviour.

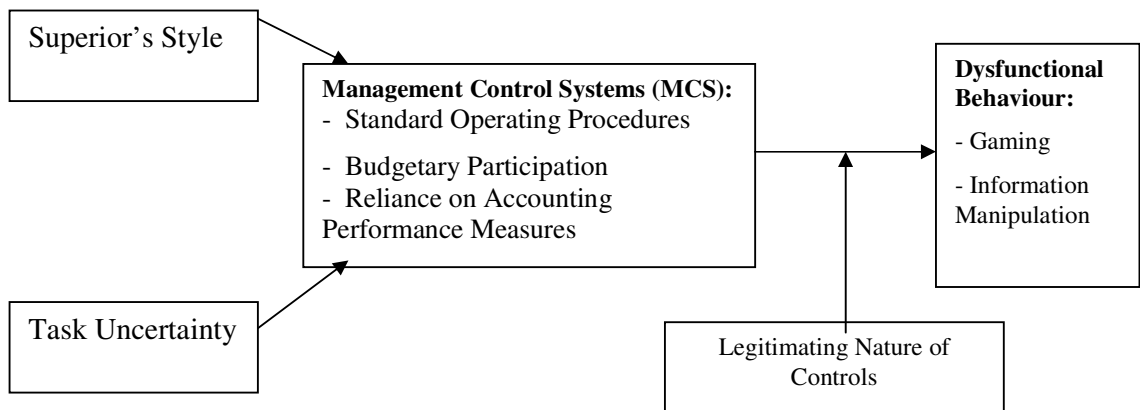


Figure 1.1: Proposed Empirical Schemas (Model 1 and Model 2)

This empirical study will be based on data collected from mailed questionnaire surveys. The target sample will be Australian functional managers of manufacturing companies, predominantly involved within the marketing and production functional areas, since it is believed that they are the main category of managers that interact with management control systems. The list of managers and companies will be identified from established business directories. Whilst the MCS and task uncertainty variables will be measured using constructs adapted from previous studies, the forms of dysfunctional behaviour, superior's use of controls and the perceptions on the legitimating nature of controls will be developed to a greater extent.

In light of the issues with methodology and statistical analysis raised in previous reviews of contingency studies (e.g. Kwok and Sharp, 1998; Hartmann and Moers, 1999; 2003), there will be a rigorous application of validity tests, mainly from the use of principal components analysis (PCA). Although confirmatory factor analysis (CFA) is

deemed statistically stronger than PCA, there are however more stringent assumptions relating to the number of observations. Also, whilst the path analysis technique (using OLS-estimated regression) has been the primary tool of analysis once all the variables have been tested for validity, there is now strong support for using structural equation modelling to estimate path relationships (Jaccard and Wan, 1996; Chenhall, 2003). However, the use of this more powerful technique is again dependent on large sample size which may or may not be forthcoming in this current study. In addition, the moderating regression analysis (MRA) remains the main technique for investigating the moderating relationships for the second model.

1.8. Expected Benefits of the Study

Firstly, this study aims at increasing the body of knowledge in understanding the dysfunctional consequences of various sub-systems/mechanisms of an organisation's MCS. Can (all) control systems reduce dysfunctional behaviour or are there specific control systems which in fact enhance the extent of managers' dysfunctional behaviour? Research into such consequences will be of importance to companies, senior management and management consultants, who are involved in the setting up of MCS. More specifically, the negative consequences of MCS, if proven, would then need to be weighed against the traditional views that such systems lead to relatively more positive consequences.

Secondly, in spite of two decades of extensive research into the relevance of contingency-based MCS, the findings remain equivocal and an overall MCS contingency framework has yet to be finalised. Researchers have consistently identified theoretical and empirical shortcomings in previous studies and encouraged further contingency-based research. This study therefore takes the view that the selected contingent variables are based on theoretical arguments, put forward by Simons (1994; 1995; 2000) and Hartmann (2000). The two selected contextual variables (Task Uncertainty and Superior's Interactive vs. Diagnostic Use of Controls) are, in their own right, relevant variables in the management control literature. Task Uncertainty has been a long standing contingent variable in the literature but its actual impact has been difficult to establish and model empirically. Superior's Use of Interactive vs. Diagnostic Controls is relatively a new variable in the literature, but which is posited to be very

relevant, based on case study evidence and the recent empirical evidence (e.g. Bisbe and Otley, 2004; Henri, 2006)

Thirdly, and whilst exploring some existing contextual variables, this study takes the view that the institutional perspective (and in wider terms, the interpretive perspective) also needs to be also considered. The institutional-led accounting studies have already convincingly argued for the relevance of the concepts of legitimacy, myths and rituals in the budgetary process. However, previous published research has been based on qualitative case studies and this study will attempt to operationalize an institutional-oriented variable and hypothesise it as a contextual variable of interest in MCS.

1.9. Structure of the Thesis

The remaining structure of the thesis will be as follows:

Chapter 2 will provide a review of the theoretical and empirical literature review on the contingency paradigm in management control systems. The scope of MCS will be defined and a categorisation of the various MCS dimensions used in management accounting research will be proposed. Then, a review of the findings related to the selected MCS sub-systems/mechanisms will be detailed. A third part will consider the use of dependent variables in contingency theory-based studies and a discussion on the need to focus on dysfunctional behaviour. This chapter will also highlight the main issues and limitations arising from the research methods applied in contingency-based research. Finally, the chapter will conclude with an analysis of lessons learned and provide detailed explanation of the research gaps to be taken up by this current study.

Chapter 3 will consider the perspective of institutional theory. A general review of the aspects and implications of the theory will be presented. Whilst the DiMaggio and Powell's (1983) view of new institutionalism will be analysed, this chapter will also examine the more critical views of Brunsson (1989) on the institutional processes within organisations. A review of current institutional-based accounting research will be also presented. These will lead towards suggesting the use of an institutional theory-based variable in the MCS area.

Chapter 4 will put forward the detailed hypotheses for the study, in terms of the relationships between the selected individual components of MCS and dysfunctional behaviour, as influenced by the relevant contextual variables. The hypotheses will first consider the direct effects and the implications of indirect effects in understanding MCS and dysfunctional behaviour. On a separate level, the influence of the legitimating nature of controls will be examined.

Chapter 5 will detail the research methods applied in this study. In particular, a mail questionnaire survey will imply a sample selection, the questionnaire design, a validation through pilot testing, the questionnaire administration and the procedures to ensure against response bias. The selection of, and justification for, constructs for the various dependent, independent and control (demographic/antecedents) variables will also be presented.

Chapter 6 will analyse and discuss findings from the data collected. All the independent and dependent variables will be first tested for validity and reliability, and the hypotheses formulated in Chapter 4 will be considered. These hypotheses are broadly categorised in relation to the testing of the direct effects, the intervening effects (task uncertainty and superiors' style of use of controls) and the moderating effects (legitimizing nature of controls).

Finally, Chapter 7 will provide a reflection on the main findings and contributions to the extant literature. The implications of these findings for management control research will be considered, taking into account any limitations that may be of relevance to future research. In light of these implications, specific research suggestions and recommendations are formulated.

Chapter 2

MCS: Theoretical and Empirical Literature Review

2.0. Introduction

The aim of this chapter is to review the state of the theoretical and empirical literature pertaining to the study of management control systems. Over the last four decades, the MCS literature has been dominated by the contingency paradigm, the continuous re-definition of what constitutes an 'MCS, and the quantitative-led implications and findings that remain connected to the role of contextual factors in MCS design and use. Although the theoretical and conceptual underpinnings (and consequent methods) have now become more diverse, it remains pertinent to present this chapter vis-à-vis this dominant paradigm and the concurrent methodologies. This chapter also seeks to demonstrate the relative dearth of research on the empirical implications of managerial dysfunctional behaviours as a consequence of MCS.

As a result, the key parts of this chapter relate to (1) an analysis of contingency theory (2) the orientations adopted in defining management control systems, (3) the empirical evidence on the selected control systems/mechanisms, (4) an evaluation of the contingent variables used in MCS research and the ones selected for this study, (5) a review of outcome variables, whether they related to the positive and negative consequences of MCS, and finally (6) a critical assessment of the research methods used. The chapter will end with an analysis of lessons learned and the resulting research gaps and opportunities that will be considered in this current study.

2.1. The Contingency Paradigm in Management Accounting and Control Systems

Contingency theory assert that organisations structure and design their management accounting and control systems (MACS) in relation to a set of external and internal contingent factors, in a bid to maximise managerial performance and effectiveness. Examples of such factors would be the level of technology and environmental uncertainty faced by the respective organisations. This is in contrast to the traditional approach whereby the design of an accounting information system (AIS) had focused on “....searching for the most desirable method of generating financial data to promote

effective decision making” (Gordon and Miller, 1976, p. 59) i.e. a normative connotation whereby:

“...little attention had been given to the need for environmental, organisational and decision making style attributes in the design of an AIS. Also overlooked in much of the previous work is the contingent nature of most decision making”. (Gordon and Miller, 1976, p. 59)

Consequently, researchers in the 1970s were more inclined to consider the appropriateness of a contingent approach to MACS although a contingency theory was yet to be conceptualised at that time (Otley, 1980, p. 84, 1980).

2.1.1. Early “Contingency-Implicit” Studies

Burns and Stalker (1961), Woodward (1965), Hopwood (1972) and Khandwalla (1972) are examples of studies where contingent factors and MACS design were intuitively linked to explain seemingly contradictory results (Hopper and Powell, 1985). In fact, Hopwood’s (1972) results on the budget constrained (B.C) style vs. profit constrained (P.C) style sparked an important development in the contingency theory formulation when they were compared to the results of Otley (1978). The latter used measures comparable to Hopwood’s (1972) study and found that:

“...Hopwood’s results were driven by the technical inadequacies of the accounting system as a means of performance evaluation in the interdependent cost centres.” (cited in Otley and Fakiolas, 2000, p. 502)

This refers to Otley’s (1980, p. 86) earlier statement of *“...an important situational difference which is suggestive of a contingent explanation¹⁰”*. Similar evidence of such situational difference is found in Khandwalla (1972), where the sophistication of accounting and control systems was related to the intensity of competition the organisation faced. The environment was thus considered as an important factor in explaining managers’ use of the information provided by the accounting and control system.

Otley (1980, p. 88) also acknowledges the influence of organisational literature in the development of a contingency theory and cites the early work of Burns and Stalker

¹⁰ This situational difference related to the degree of interdependence between responsibility centres. Hopwood (1972) studied interdependent cost centres whereas Otley (1978) selected independent profit centres

(1961). The relevance of organisational structure within a contingency paradigm was eventually applied and tested in various studies such as Lawrence and Lorsch (1967), Bruns and Waterhouse (1975), Sathe (1978), Watson and Baumler (1975), and Waterhouse and Tiessen (1978). As mentioned earlier, the conceptualisation of a contingency theory for MCS design might have been a lesser priority at that time. Otley (p. 91, 1980) summarises the attempts at a theoretical formulation, such as those by Gordon and Miller (1976) and Waterhouse and Tiessen (1978).

2.1.2. Early Theoretical Propositions

Gordon and Miller (1976) proposed three “archetypes” in relation to specific features of the AIS (1976, p. 570) i.e. a classification of organisations into three categories¹¹ based on environmental, organisational, and decision style characteristics exhibited by these firms. However, it might be argued that such broad categorisation was an oversimplification of the relationship between contingent variables and AIS design. Furthermore, Otley (p. 91, 1980) criticises the proposition due to the lack of consideration of organisational objectives and effectiveness in the model.

In contrast to Gordon and Miller’s (1976) framework, Waterhouse and Tiessen (1978) use only two categories of contingent variables: environment and technology. The various departments/units within the organisation are viewed as either being operational functions or management functions (Otley, 1980, p. 91). The former will focus on the technology factors whereas the latter is expected to consider environmental factors and therefore, the design of control systems would be dependent upon the needs of each department/unit. Since the distinction between operational and management functions falls within the “organisation structure” factor, Waterhouse and Tiessen (1978) conclude that organisation structure is itself contingent on technology and environment.

Alternatively, Otley (1980, p. 96) proposes his own “minimum necessary contingency framework” whereby he defines a contingent variable as one that cannot be controlled or influenced by the organisation¹². The organisational control package is viewed as one “setup” and is made up the AIS design, organisational design and other control

¹¹ Firms would be categorised as “adaptive”, “running blind” or “stagnant bureaucracy” firms.

¹² As an exception to this “rule”, organizational objectives will be regarded as a contingent variable, despite being a “controllable” factor.

arrangements. In contrast with previous theoretical attempts, Otley (1980, p. 97) formalises organisational effectiveness as a dependent variable whereby the “*..proposed framework takes ends as given and is concerned with the most effective means of achieving them*”.

Otley (1980, p. 94) also argues that it would be very difficult to assess the impact of each component of the organisational control package on effectiveness, such as separating the AIS design from the control process¹³. Therefore,

“The organisation adapts to the contingencies it faces by arranging the factors it can control into an appropriate configuration that it hopes will lead to effective performance.” (Otley, 1980, p. 96)

This adaptation or arrangement of factors can be viewed as a reaction by the organisation to a set of contingency factors, and a contingency theory is expected to provide the necessary underpinnings in understanding and, by extension, in generalising such reaction. Indeed, Otley (1980, p. 84) expects that:

“...a contingency theory must identify specific aspects of an accounting system which are associated with certain defined circumstances and demonstrate an appropriate matching”.

The “demonstration of an appropriate matching” is of central importance to Otley (1978) since it implies the need for an “outcome effect” to validate a contingency-based model. The outcome could be performance, effectiveness, satisfaction, or even more positive (or less negative) attitudes to work. Evidently, the selection of a suitable outcome variable is critical and a review of the outcome variables will be presented later in the chapter (Section 2.7.1).

Bearing in mind Otley’s (1978) model, Fisher (1995) situates the contingency approach of relating MACS to performance ideally between two extremes: the situation specific and the universalistic approaches (Hambrick and Lei, 1985). The former approach implies that the relationship between any component of organisational design (such as a control system), situational factors and performance is firm-specific and thus cannot be generalised, whereas the latter perspective assumes that there is an optimal organisational design which would hold, to a certain extent, for all firms and situations (Fisher, 1995, p. 29).

¹³ In this example, these two components are clearly complementary ones.

2.1.3 Validating Contingency Theory in MACS Research

In light of the previous section, it needs to be determined whether Otley's expectation has been actually fulfilled during the last two decades or so. Chapman (1997, p. 187) highlights the "fundamental appeal" of the contingency theory paradigm and argues that part of this appeal may lie in the simplicity of the original proposition. However, he cites earlier reviews by Otley (1980), Dent (1990), and Langfield-Smith (1997) where they agree on:

".....the lack of an overall framework for the analysis of the relationship between contingent factors and accounting, leaving no obvious starting point for an explanation of an increasing body of often contradictory results"
(Chapman, 1997, p. 189)

Nevertheless, Chapman (1997) contends that the contradictions and lack of framework may in fact be related to a diverse understanding of the notion of contingency by researchers. He refers to a "...*lack of communication between different schools of research*" (1997, p. 189) on the contingent nature of accounting. If one considers the various empirical studies¹⁴ reviewed by Chapman (1997), it appears that Otley's contingency proposition may have been applied on a piecemeal and uncoordinated fashion: an issue that was already raised by Fisher (1995, p. 24). This assertion is not a criticism of the individual studies, and their related findings within each "school of research" *per se*, but rather indicates the absence of common strand linking these studies to contingency theory.

As an illustration of this lack of coordination and the inherent difficulties in developing a contingency framework, a study by Otley and Pollanen (2000) reviewed the research on the use of budgetary criteria in performance evaluation¹⁵. Although they consider (2000, p. 483) that studies in this area produced a number of findings and significant results, they also conclude:

"Even so, the work is characterised by a number of number of deficiencies. Different authors have tackled different aspects of the issue; different studies use different subsets of variables; in many cases, the same variable is measured in importantly different ways.....each new piece of work has chosen to vary some aspect of the research design so that it is impossible to gauge the general validity of any of the reported work." (2000, p. 483-484)

¹⁴ The "streams" of studies reviewed by Chapman (1997) are on Reliance of Accounting Performance Measures (RAPM), Centralisation of Control & Accounting, and Strategy & Accounting.

¹⁵ For example, Hopwood (1972), Otley (1978), Brownell (1982a, 1985), Dunk (1989), Harrison (1992).

The above comments thus highlight a significant number of problems relating to the selection of variables, which need to be further examined.

2.1.4. Issues in Selecting Contingency Variables

The lack of communication mentioned by Chapman (1997) in the previous section could also be related to the selection (or non selection) of contingency variables. In the context of MCS studies, Fisher (1998) noted that there has been little work in the identification of relevant contingency variables whereby:

“A contingent variable is relevant to the degree that businesses that differ on that variable also exhibit major differences in how control attributes or actions are associated with performance”. (Fisher, 1998, p. 48)

In the absence of a clear list of relevant contingencies, researchers have focused on a limited number of contingent variables, which *a priori* should have an impact on MCS. This created the perception that:

“Contingency studies have come to be seen as large scale, cross sectional, postal questionnaire-based research, which examine the interaction of a limited number of variables.” (Chapman, 1997, p. 189)

Chapman illustrates this arbitrary selection (or non selection) of “a limited number of variables” by referring to the research on the impact of strategy. He cites Langfield-Smith (1997, p. 189) who expressed surprise as to the absence of business strategy as a variable in MCS research prior to the 1980s, despite early support by Chandler (1962) and Mintzberg (1973). The absence of the strategy variable could have been related to the difficulties in isolating the different aspects of strategy within an organization. Within the same context, Chapman (1997, p. 190) reminded that contingency theorists already warned of the inability of the study to “...provide generally applicable results, [but] only locally accurate ones”. In this respect, Chapman (1997, p. 190) also refers to Miles and Snow (1978), whose attempts to create a simpler and more generalised framework for describing strategic behaviour, was achieved at the expense of accuracy.

The treatment of strategy as a variable (see also Hofer, 1975) in contingency studies highlights the problem of a “trade off” between the three qualities of contingency-based research: simplicity, generality and accuracy (Weick, 1979). Such a trade-off may be

viewed as necessary to analyse the results of “strategy-based” studies but it may also inherently impede the development of an overall contingency framework. Furthermore, as stated by Fisher (1998, p. 49), some of these variables (such as environmental uncertainty) capture very broad aspects and may in fact “hide” more specific and relevant ones or may exhibit strong cross-correlations between them.

Mauldin and Ruchala (1999) also highlight the lack of a substantive basis to suggest which variables, and/or which combinations of variables, are important. It may be true that there are very strong, empirically validated, relationships for variables such as environmental uncertainty, technology and strategy but this does not necessarily mean they are the most important ones. Indeed, the authors make a very pertinent observation that illustrates the paradox of the contingency paradigm:

“...it is difficult to argue against inclusion of any of the contingent variables, yet equally difficult to determine their completeness or to know which combinations of factors make sense and are more important.” (1999, p. 324)

Such criticisms were earlier voiced by Schoohoven (1981), who does not consider contingency theory to be a theory at all (1981, p. 350) but rather an orientating strategy. The latter assumes the necessity of relating structures (such as accounting and control systems) to the existing perceived conditions (internal and external) in a bid to achieve effectiveness. “Consistency”, “matching”, “fit” thus became the keywords for contingency theory, but there was no guidance as to which contingency variables should be used.

2.1.5. Contingency Variables: A Selected Inventory

The relative consistency in the use of contingency variables, in terms of their meanings and measurement, in empirical studies is also an area of contention. Ideally, it is expected that successive studies can build on existing knowledge, such as variable measurement and definition, to create consistent additions to the theoretical contingency propositions. However, this has not been completely the case. For illustration purposes, a non-exhaustive list of 47 contextual (refer to Appendix 2.1) variables used in management accounting studies was identified for analysis. The selected empirical studies were in the area of budgetary participation, RAPM, incentive bonus system, and MACS design. The list also includes brief definitions and measurement constructs for

each variable together with a list of studies that have applied the variable. The following observations can be made.

The “self-evident” (Emmanuel et al., 1990, p. 60) importance of the external environment as a contingency variable has been extensively researched but also diversely interpreted and operationalised. Within the selected list, there are seven different contingent variables which purport to capture the effects (partial or complete) of the environment namely: environment, environmental uncertainty, environmental volatility, intensity of market competition, market factors, product life cycle, and perceived environmental uncertainty (PEU). All these variables are measured by survey-based questions, except for environmental volatility (computed from accounting numbers). The PEU construct is the most common one with the general focus being laid on the relative predictability of the various components of the external environment (such as customers, competition, suppliers, regulatory bodies). However, there have also been narrowly defined variables (e.g. product life cycle and market factors) that prevent greater consistency in the interpretation of the impact of the “environment” factor.

One other potential issue relates to the use of different constructs to represent the same variable and may also affect the comparison of contingency-based studies. For example PEU has been operationalised differently, based on Khandwalla (1972)/Miles and Snow (1978) or Duncan (1972). In turn, Govindarajan (1984) and Gordon and Narayanan (1984) have further modified these original measures. Tymon et al. (1998) provides a detailed review of the different scales used and concludes that:

“...accounting PEU research, particularly that based upon Duncan (1972), has often diverged from conceptualising PEU as a strategic construct. In doing so, the meaning of PEU has often been confounded with other well established constructs, most notably, role ambiguity.” (Tymon et al, 1998, p. 43).

In a similar vein, the strategy variable has also viewed from diverse dimensions or what are commonly known as typologies. There are three main typologies that have been applied but one has yet to identify which one provides a better description of the strategic orientations of a company. Langfield-Smith (1997, p. 227) has mentioned the issue as to whether respondents understand and view themselves as applying one of these three typologies. In contrast, Merchant (1990, 1985b) did use the company’s own terminologies to avoid interpretation problems.

Furthermore, the contingency paradigm may have encouraged the development of different contingency factors that focus (fully or mostly) on the same underlying variable of interest. This clearly leads to ambiguous interpretations when comparing studies. For example, the variable “functional differentiation” has been used by several studies but the arguments/propositions used invariably ties it to task uncertainty. Therefore, functional differentiation may not be necessarily a variable of interest in such studies as long as it is linked to differences in task uncertainty. Also, organisational commitment (as defined by Nouri and Parker, 1996, p. 211) does not appear different from goal congruence (Jaworski and Young, 1992, p. 26) since both definitions refer to the adoption of organisational goals and values by the individual.

On the other hand, variables such as locus of control, authoritarianism, interdependence, and leadership style (consideration and initiating structure) have been consistently defined and applied in the various studies, thus reducing the possible confounding effects of different measurement. Also, in some situations, studies have used synonymous terms for the same variable but measured it consistently e.g. manufacturing flexibility (or customisation) and task difficulty (or job difficulty).

This review of contingency variables reveals, to a certain extent, a multiplication of the variables of interest and their measurement scales, thus confirming the earlier comments of Otley and Pollanen (2000) made in the context of RAPM studies. Given that contingency theory does not provide for a “conceptual barrier” to select the contingent variable of interest, there is the increasing possibility that research in the field of MACS may be directed towards “discovering” new variables rather than confirming the relevance of the existing ones.

2.1.6. Interpreting Contingency-based Findings

Chapman (1997, p. 190) observes that contingency researchers happen to have very unsophisticated perceptions of the accounting function i.e. “...*a purely formal and routine technology...*”, and their relationship with the contingency factors such as environmental uncertainty. Similarly, Hopper and Powell (1985) argue that management, as a whole, is portrayed as a technical role involving the “...matching of organisational design to the dictates of contingent factors”. This is reminiscent of the objectivist approach whereby “...*societies, organisations and control systems are seen*

to have an empirical existence independent of any individual's cognition, and needs and goals have been imputed to each..." (Hopper and Powell, 1985, p. 441)

More importantly the use of accounting information in organisations, with respect to a host of contingent variables, appears to have been interpreted in a gradually normative fashion rather than remaining a positive one. In other words, a correct match between MAS design and contingent factors will imply effective performance. Hence,

"...effective operation of enterprises is seen as dependent upon there being a suitable match between its internal organisation (including structures, styles of leadership and decision making), and the nature of the demands placed upon it by its tasks, size, environment and members' wants" (Hopper and Powell, 1985, p. 441)

Hopper and Powell (1985) review the various approaches to understanding organisational and social aspects of management accounting and are critical of contingency theory. They contend that, although a contingency theory foundation was supposed to describe and measure practice (and eventually explain relationships between organisational performance, MCS design and contingency variables), contingency studies may have been used to justify, and generate, normative models (i.e. a strict cause and effect relationship). The correlation and regression techniques that are frequently used in contingency studies may have encouraged such reasoning. As quoted from Hopper and Powell (1985, p. 441):

"i.e., thus, what is slips into what should be. What might be is not addressed. By emphasizing technological determinism and neglecting how control systems may be a product of social cultures, ideologies and power struggles, attention is deflected from alternatives based on different values"

The criticisms voiced above by Hopper and Powell (1985) and Chapman (1997) seem to indicate that contingency-based studies have diverged from its ideal "middle position" (as described earlier by Fisher, 1995) by being too situation specific (Chapman's comments on piecemeal findings) or too normative oriented (Hopper and Powell). In addition, Hopper and Powell (1985) refer to comments made in the literature (e.g. Schreyogg, 1980; Cooper, 1981) whereby " ...all criticise contingency theory for paying insufficient attention to the discretion possessed by key decision makers and how values, beliefs and ideologies may influence choices". Thus, the prescriptive orientation that contingency studies have taken may have clouded the "real" variables of interest and ignored the interactive aspect i.e. social cultures, ideologies and power struggles. At this stage it is unclear as to how such so-called "non-

technical” variables can be modelled with success within the contingency paradigm, which pre-supposes strong technical (hence, rational) relationships. For example, the relevance of national culture as a situational variable in MCS studies¹⁶ has been researched and observed, but there have been quite a few non-significant results or contradictory findings (Chow et al, 1999, p. 442).

2.1.7. Seeking Commonality: Chapman’s (1997) Arguments

In an attempt to extract some commonality towards developing an overall contingency framework, Chapman (1997, p. 1997) reviews three contingency studies that have looked at the impact of environmental uncertainty on organisation structure, namely Burns and Stalker (1961), Woodward (1965) and Lawrence and Lorsch (1967). He argues that the style of communication is in fact the real variable of interest and the determinant that responds to uncertainty. Therefore, “....*structure might be seen as a proxy for communication, not a solution in its own right*” (Chapman, 1997, p. 198). Chapman (1997, p. 199) justifies his assertions by referring to earlier propositions made by Galbraith (1973), who also reviewed the three above-mentioned studies in a bid to analyse the “uncertainty” variable. Galbraith (1973) viewed uncertainty as a shortage of information and consequently expected organisations to provide updated and regular information to ensure task performance in such conditions.

Building on the writings Galbraith (1973), Chapman (1997, p. 200) concludes that the “uncertainty” definition¹⁷ as applied in most contingency studies is far from representing all the elements or “subsets” of uncertainty. He further argues that the usual elements of uncertainty applied in contingency studies are in fact complexity variables. According to Chapman (1997, p. 1997), this confusion is at the root of the “perceived” and “actual” uncertainty differences put forward by Gordon and Narayanan (1984) - whereby some organisations would fail to recognise the level of uncertainty they were actually facing. Indeed, it was an assertion that conveniently avoided the issue as to the appropriateness of the research instruments for describing and measuring uncertainty. Chapman (1997, p. 201) concludes that Galbraith’s (1973) proposition, where organisations are viewed as information processing entities, is a more adequate to

¹⁶ Refer to Chow et al. (1999) for a review of studies linking management control and national culture (based on Hofstede’s taxonomy, 1980, 1991)

¹⁷ Which include elements such as environment, technology and interdependence.

the contingency framework. Hence, the contingent variables earlier identified become measures of complexity whereas uncertainty is considered to be the major determinant in the design of the structure and processes of an entity's information system.

“Uncertainty is caused not only by the interaction of a number of external contextual factors, but critically also by factors such as the level of organisational knowledge and understanding of how these impact on internal processes” (Chapman, p. 201, 1997)

Chapman (1997) then attempts to illustrate his proposals using earlier organisational typologies that relate uncertainty, decision-making and the role of information and control systems. More specifically, he makes use of Hopwood's (1980) notion of answer machines and learning machines. In a low uncertainty situation, the accounting function has “all the answers” and there will be high reliance on budget-related measures. In a high uncertainty situation, the accounting numbers are deemed to be insufficient or even outdated to enable the organisation to take decisions. This would perhaps imply more reliance on non-financial information. However, it is unclear as to how such a condition could result into accounting being a learning machine. Chapman (1997, p. 202) expresses some doubts:

“The process through which we might expect accounting to become a tool for learning however is more complex and revolves around the meaning attached to accounting numbers.”

Chapman also raises difficulties that one may experience in observing the above-mentioned processes using questionnaire surveys although he concedes that a successful “..comprehensive view of the contingent nature of accounting..” (1997, p. 202) may depend on such methods. In substantive terms, the PEU variable has been successful in providing a different, but very relevant, perspective of uncertainty as opposed to the complexity variable. In so doing, it also highlights the problems faced by contingency researchers in describing and measuring, accurately and completely, contingent variables, as seen earlier in the review of some selected contingency variables. However, there is one issue that appears to be brushed aside in Chapman's framework: information is not processed by organisations but rather by individuals. Thus, can one model an organisation as a monolithic entity when information processing and requirements are considered?

When Chapman (1997) referred to the causes of uncertainty (earlier quotation on uncertainty), he also raised one limitation:

“The implication of this is that, far from being unexpected, different responses to similar external stimuli might be almost inevitable” (1997, p. 201)

This lack of consistent responses may indeed be related to the different perceptions of the same information set by different managers within the same entity. Or more interestingly, there could be a need to integrate other theories to the contingency paradigm to seek more accurate explanations of such inconsistent results.

2.1.8. Integrating Alternate Theoretical Perspectives (Chenhall, 2003)

Chenhall (2003) provides a more recent and thorough review of contingency-based MCS studies. Apart from the extensive review he conducted on the types of MCS being researched and the selected contingent variables, he proposes the integration of various theories within the contingency-based MCS literature. He argues (2003, p. 157) that there is no specific contingency theory, but rather a variety of theories that may be used to explain and predict the conditions under which particular MCS will be found or where they will be associated with enhanced performance. In view of the multiplicity of events and contextual settings that are likely to affect MCS, Chenhall (2003) raises the possibility that future MCS studies can be improved by integrating insights from alternate theoretical perspectives. Although the author implicitly predicts that such theories would shed light on the positive outcomes of MCS, there is no reason to believe that similar benefits can be obtained when researching on more negative outcomes, as proposed in this study.

The alternate theories elaborated by Chenhall (2003) are agency theory (the role of incentive schemes), population-ecology theory (issues relating to birth and death of organisations), psychology theories (trust, organisational commitment etc), and behavioural economics (impact of cognitive limitations on decision making). In addition, one criticism of contingency-based research is that it has relied on traditional, functionalist theories and has not applied more interpretive and critical views (Chenhall, 2003, p. 159). For example, one possible interpretation would be that MCS does not necessarily lead to effectiveness or organisational benefits but is rather used for political and power purposes. Hence, MCS are not only seen as passive mechanisms to be used by managers to assist in optimizing resource allocation. They are in fact used to legitimate particular power relationships within organisations and the MCS

implementation may be motivated by mimicry and compliance rather than a need for enhanced efficiency (Chenhall, 2003, p. 160)

The key question remains whether such theories can be combined with the traditional contingency model. On the basis of past research and arguments, Chenhall (2003, p. 160) believes it would be possible for:

“A contingency-based approach attempts to map variables and demonstrate potential relationships between these variables, which may include power and politics, and indicate potential links with outcomes “

This argument is a critical one in that it is important to note that *integrating* alternate theories does not mean *unifying* the functional and alternate approaches. This is one of the motivations behind investigating the use of institutional theory-based variables in this study. The latter theory will be reviewed in more detail in Chapter 3.

2.1.9. Concluding Remarks

Insofar as MCS research is concerned, it can be argued from the above review that the contingency paradigm remains at a crossroad. In view of Chapman's (1997) and Chenhall's (2003) earlier comments, it has taken root within the MCS literature in providing a simple and clear direction for researchers but it is now clearly beyond the definition of a mere 'orientating strategy'. Contemporary authors argue that the contingent perspective has not provided the answers but arguably these answers are dependent on the nature and depth of the contextual factors, the variable under study (i.e. level and complexity of MCS) and the outcome variable. In this respect, one cannot criticise the theory simply because the arbitrarily selected variables did not provide the intended impact on the arbitrarily selected outcomes. In this view, Chenhall's (2003) proposal to integrate alternate theories is beneficial in the sense of developing a more in-depth analysis and understanding of the so-called contextual factors and/or results. At the same time, Chapman's (1997) comments re-assert the primacy of the 'uncertainty' factor in MCS, as inspired by the initial writings of Burns and Stalker (1961), Woodward (1965), Lawrence and Lorsh (1967) and Galbraith (1973). These recent theoretical/conceptual reviews by Chapman and Chenhall are thus supportive of further contingency research that would consider the applicability of the 'alternate theory' and 'uncertainty' factors. As a result, these are considered (separately) in this study. In addition, and despite the absence of a "consistent picture" relating contextual factors

and components of management accounting and control systems (MACS), contingency theory remains fundamentally appealing in view of some of its relative successes in specific MACS sub-systems. Recently published MCS studies show a continued reliance on contingency thinking, in terms of not only seeking to understand the moderating effects of these variables but also their effects as antecedent variables (e.g. Naranjo-Gil and Hartmann, 2007; Widener, 2004). The next section will provide a detailed review of the control sub-systems selected for this study.

2.2. Management Control Systems: Definitions and Scope

This section reviews the various terms, definitions and scope that have been applied in management accounting research literature since the early 1970s to describe management accounting and control systems in an organisational context. Also, a more focused review of the different mechanisms/dimensions of management control systems, and a tentative classification of these mechanisms/dimensions, is proposed. The overall objective of these reviews is to highlight commonalities and inconsistencies in these definitions, hence providing a base for the selection of a theoretically sound, and empirically testable, definition and scope of management control systems (MCS).

2.2.1. Comparing the Definitions and Conceptualisations of MCS

Appendix 2.2 provides, in chronological order, a list of those studies that have considered the definitions (or descriptions) of the following terms: accounting systems, accounting information systems (AIS), information & control systems, management information systems (MIS), management accounting system (MAS), and management control systems (MCS). The definition is summarised, together with the context or objectives adopted in each study.

The management accounting literature contains a substantial amount of research on the impact of budgets, budgetary controls and/or budgetary process on managerial performance. However, issues relating to definitions of budgetary controls and processes and the scope of research into the use of budgetary information (a formal control mechanism) have been far less controversial. Briers and Hirst (1990), Otley and Pollanen (2000) and Hartmann (2000) provide a thorough review of such research and its implications, and an illustration of the lack of controversy can be seen from Merchant's (1984, in Appendix 2.2, No. 8) definition of budgeting as a part of a MCS.

On the other hand, a review of definitions in the remaining empirical and theoretical literature on MCS reveals disagreements and inconsistencies. For example, Hopwood's (1972) description of accounting systems is a very broad one, emphasising the informational aspects of the system. Yet his study focuses only on performance evaluation i.e. one control aspect of the accounting system. His subsequent definitions (Hopwood, 1977; 1978), however, became more specific, when he considered control systems to be separate from the information system.

One attempt at identifying individual components of the accounting system resulted in the term "management accounting system", which is viewed by Otley (1980, p. 91) as one type of formal control mechanism - i.e. directed at ensuring proper behaviour. Other researchers, such as Tiessen and Waterhouse (1983), Macintosh and Daft (1987), Amat et al. (1994), Chia (1995), and Sim and Killough (1998) have also shared similar views. However, Gordon and Narayanan (1984) argued that MAS-oriented research has in fact been concerned with information system characteristics rather than control system ones. This view has become manifest in studies of the MAS information dimensions of scope, aggregation, timeliness and integration, as put forward by Chenhall and Morris (1986) and applied – sometimes inconsistently - in several studies (e.g. Mia and Chenhall, 1994; Chong 1996; Mia and Clarke 1999; Tsui, 2001). Alternatively, it is observed that the term "management control systems" has been defined fairly consistently throughout the literature. As stated by Anthony and Govindarajan (1998),

"The system used by management to control the activities of an organization is called its management control system. Management control is the process by which managers influence other members of the organization to implement the organization's strategies". (1998, p. 17)

MCS is referred to as a formal (cybernetic) control system with an overall aim of regulating behaviours within the organization. So far, research in MCS has been restricted to the relationships between managers and their superiors, and thus does not consider the effects/consequences/effectiveness of control systems on non-managerial staff. Hence, Merchant's (1989) definition (cited in Fisher, 1995) is more relevant i.e. MCS aims at ensuring that mid-level managers carry out organizational objectives and strategies. In contrast to Shields et al.'s (2000, p. 185) traditional view of the cybernetic control model where targets (budget or standards) are compared to actual output as a basis for corrective action or performance evaluation, Anthony and Govindarajan (1998, p. 7) contend that management control must take a more flexible perspective and would,

in fact, involve all managerial activities¹⁸. This has allowed for a gradual inclusion of non-financial based measures/controls e.g. Abernethy and Lillis (1995), Fisher (1995 and 1996), Chow et al. (1996), Langfield-Smith (1997), Anthony and Govindarajan (1998) and Davila (2000)¹⁹. Chenhall (2003, p. 129) made a more recent attempt at defining MCS but argued that MCS is a broader term that encompasses MAS and also includes other controls such as personal or clan controls, and perceives MCS as “passive tools” providing information to assist managers. This is in contrast to Anthony and Govindarajan’s (1998) perspective since they consider MCS to be an “active tool” for managerial activities.

In parallel, Simons (1995; 2000) reviews the conceptualisation of control systems in the context of strategy implementation. He argues that MCS are in fact information-based systems that ‘become’ control systems when they are used to maintain or alter patterns in organizational activities (1995, p. 5). To some extent, he sought to transcend the various previously used distinctions – i.e. active/passive, formal/informal and financial/non-financial – and posits that the control of business strategy is achieved by the combined use and integration of four levers of control, namely belief systems, boundary systems, diagnostic control systems and interactive control systems. More crucially however, he argues that the power of these levers in implementing strategy does not lie in how each is used alone, but rather in how the forces create a ‘dynamic tension’ (Simons, 2000, p. 301). As a result of this dynamic tension, it is argued that control features can be complementary i.e. increasing the emphasis on one control component increases the benefit received from other control components (Tuomela, 2005; Widener, 2007). However, the focus of Simon’s conceptualisations of controls is more generic, focusing more on strategy-controls linkages and how these are collectively used rather than on the nature, feature or characteristics of management controls *per se* and how they each individually influence behaviour.

Nevertheless, and based on the above-mentioned definitions, it can be stated that MCS research tends to focus on the control aspects of an organisation’s management information system. The various forms and mechanisms of MCS will now be considered as categorised by the MCS literature.

¹⁸ Planning, Coordinating, Communicating, Evaluating, Deciding and Influencing (1998, p.7).

¹⁹ Davila (2000, p. 395) devised a new measure of MCS design (as a dependent variable) using 3 main characteristics, after having identified six types of information most frequently reported through the organizations’ formal systems.

2.2.2. Categories of Control Systems

The literature provides different categories and types of management control systems. For example, Westerlund and Sjostrand (1979, cited in Otley, 1980) classify formalised control systems as “means of control” for long-range or short-range activity. Examples of some of the means of control for short-range activity are regulations, budgets, directions, checklists, standards, resource allocation and delegation of decisions. The long-range activity “means of controls” are mostly in the form of long term planning documents (for investment, recruitment and selection and promotions).

An alternative categorisation of control practices was also proposed by Merchant (1982), where he classified control mechanisms as (i) specific-action controls, (ii) results-of-decisions controls and (iii) personnel controls (cited in Kren and Kerr, 1993, p. 162)²⁰. The first category focused on authority-limit controls (e.g. authority limits, standard procedures and manuals) while the second category considered the extent of formal meetings to review decisions and required explanations for variances. Finally, personnel controls related to the extent of use of informal contacts meetings with superiors and the use of belief/boundary systems (e.g. Marginson, 2002; Widener, 2004).

As explained in the previous section, Simons (1995; 2001) developed a generic and broader conceptualisation of control systems by referring to belief systems (used to inspire and direct the search for new opportunities), boundary systems (used to set limits on opportunity seeking behaviour), diagnostic controls (used to motivate, monitor, and reward achievement of specified goals), and interactive controls (used to stimulate organizational learning, and the emergence of new ideas and strategies). For example, a mission statement could be seen a belief system whilst a standard operating procedure could be an example of a boundary system. However, the budgetary participation could have both interactive features (i.e. stimulate learning and new ideas/strategies) as well as a diagnostic ones (used to motivate and monitor). Furthermore, according to Simons (1995, p. 7), these four levers create opposing forces of effective strategy implementation. Whilst belief systems and interactive control

²⁰ There is a fourth category, known as information system controls, which relates to informational characteristics rather than control ones.

systems create positive and inspirational forces, the other two levers create constraints and ensure compliance with orders. It is this interplay of forces – operated by senior managers – that creates a dynamic tension. For example, one can consider that belief systems motivate managers towards exploring new opportunities but at the same time, boundary systems seek to constrain the exploration spurred on by the belief systems. The notion that these two opposing forces are complementary has been empirically investigated recently (e.g. Widener, 2007).

On the other hand, Fisher (1995) refers to Giglioni and Bedeian's²¹ (1974) distinction between general control mechanisms and formal control systems. The former is applied via standard operating procedures, firm structure, firm culture and human resource policies whereas the latter category must be based on performance targets, actual and feedback i.e. a cybernetic model (Fisher, 1995, p. 26). According to Fisher (1995), the general control mechanisms are not formal control systems *per se*, but they do impact on the operation and effectiveness of formal control systems.

While general control mechanisms, such as firm culture and firm structure, can indeed be viewed as being indirectly related to an organisation's control system, it is difficult to consider standard operating procedures (SOP) as being potentially less important than other formal control systems (such as a budgetary control system). Macintosh and Daft (1987, p. 51) define SOP as the set of written rules, procedures, policies and operating manuals used to guide managers as they administer their departments. They also include general policy guidelines, job descriptions and prescriptions for how managers should handle operational situations that might arise. The auditing literature generally refers to the term "internal controls" to describe some of the standard operating procedures. SOP do form an important part of any public or private sector's organisational control system. It could also be interpreted as having "cybernetic" characteristics, but with a selective feedback mechanism i.e. arising only when departures from the standard (e.g. rules) are noted.

Insofar the "formal" control systems are concerned, Fisher (1995) comments that most of the MCS research has focused on budgeting systems and incentive compensation schemes. The financial nature of these control systems has indeed attracted accounting

²¹ Cited in Fisher (1995, p. 25).

research into this area and there has been less emphasis on non-financial control systems. As a case in point, the research into incentive compensation scheme as a control system (e.g. Fisher and Govindarajan, 1993) has focused solely on financial rewards (Fisher, 1998, p. 28). Given that incentive schemes are generally made up of a mix of financial and non-financial rewards (such as promotion), findings into the adequacy of this control mechanism could be significantly limited. Fisher (1995, p. 28) also provides a list of macro control attributes that have been used to describe the general orientation of control systems. A summary explanation of each attribute is detailed in Table 2.1 below.

Macro Control Attribute	Description
Tight vs. Loose	Degree of actual enforcement of the control system.
Objective vs. Subjective	Extent to which the system is based on pre-determined formula and policies, rather than on subjective evaluation
Mechanistic vs. Organic	Extent to which the control system is applied methodically without consideration to contextual factors or exceptions.
Short Term vs. Long Term	Extent to which control system is based on short term or long term performance measures
Group vs. Individual	Extent to which the control system's targets are applicable to all sub-units within the organisation or tailor-made to each sub-unit
Interactive vs. Programmed	Extent of involvement of evaluator in the control system process.
Administrative vs. Interpersonal	Administrative control systems would imply greater emphasis on subordinate budget participation, on achievement of budget targets and more detailed budget data.
Behaviour vs. Outcome	Extent to which control system focuses on regulating behaviour (the means) rather than assessing results (the end) only.

Table 2.1 : Macro Control Attributes - Summarised from Fisher (1995²²)

In addition, some of these attributes can also be applied to sub-control systems, thus providing a different outlook of the same control system e.g. the criteria used for a performance related compensation scheme can be classified in terms of its degree of objectivity. Also, given the common view that financial measures are short-term based and tend to apply to all sub-units within an organisation (Fisher, 1995, p. 28), a criteria for a compensation scheme can thus be also be classified as short term or group oriented. More recently, Chenhall (2003) has focused on the organic vs. mechanistic control attributes to classify controls. Overall, whilst these macro control attributes

²² One could add to this classification the interactive vs. diagnostic use of control systems, as suggested by Simons (1995; 2000)

appear useful to model MCS, it also seems that researchers have investigated control systems using different mindsets and contexts.

2.2.3. Classifying the Researched MCS Dimensions.

Based on review of the MCS literature, 16 different dimensions²³, individual aspects and/or perspectives of the management control system (at diverse levels) have been identified and reported in Appendix 2.3. One can thus map that MCS has been researched at three distinct levels or tiers:

- (a) Tier 1: Management Control Systems in General (Dimension No. 1, 2 and 3) – Studies like Simons (1987a) and Kren and Kerr (1993)²⁴ have focused on the state and impact of MCS in general. Data was sought on the individual aspects of the control systems but were eventually subsumed or factored within ad-hoc categories. Simons (1990), Marginson (2002) and Widener (2007) also adopted this level of MCS as the event to be researched and used case study methods to describe and analyse the effects of control systems.

- (b) Tier 2: Major Control Sub-Systems – The major control sub-systems that have been researched at this level are the structuring of activities (No. 4), standard operating procedures (No. 5 and No. 6) and the budgeting process (No. 9, No. 10 and No. 11). There have been different dimensions used to represent these major control sub-systems. For example, standard operating procedures was viewed solely in terms of the extent of activities which are controlled by manuals/procedures (Chow et al, 1999, p. 458), compared to Macintosh and Daft's (1987) characteristics of SOPs (number of pages, number of books, extent to which adherence to SOP is reflected in performance evaluation etc.).

Similarly, the budgeting process was operationalised in terms of operating budget and statistical reports (non-financial dimension) characteristics (Macintosh and Daft, 1987) while budget-related behaviour (BRB) attempted to summarise all the control aspects of the budget. However, there are notable similarities between both dimensions such as “extent of responses/explanation to variances” and

²³ These do not include contemporary innovations in MCS such as Activity-based costing, balanced scorecards, target costing (as mentioned in Chenhall,2003)

²⁴ Adapted from Merchant (1982).

“Subordinate’s Influence on Budget/Target Setting”. It is also noted there have been very little research applying general aspects of sub-control systems for performance appraisal system and compensation schemes²⁵.

- (c) Tier 3: Individual Management Control Mechanisms – This is the category where researchers have mostly focused on such as budgetary participation (No. 7), reliance on accounting measures for performance evaluation (No. 14) and budget performance/rewards linkages (No. 15). In these cases, individual aspects of control sub-systems were selected presumably in an attempt to obtain more focused and consistent results, thus avoiding potential confounding effects of too many dimensions of management control systems (as in (a) and (b) above). Inevitably, those of direct relevance to accountants (i.e. the use of financial measures/numbers) were privileged. In addition, the simplification of the control variables in these studies may overlook very relevant inter-relationships between the different control sub-systems and mechanisms, as argued by Fisher (1995). However, the inclusion of too many control components within a contingency framework may lead into an un-interpretable and unmanageable model.

2.2.4. Concluding Remarks

Despite widespread agreement to the “textbook” definition of MCS (i.e. Anthony and Govindarajan, 1998, p.7), the extant research has operationalised MCS in very different ways. A tentative category of such dimensions/aspects has been proposed. Whilst there are unexplored avenues in the research of major sub-control systems (such as performance evaluation and compensation), this study aims at linking MCS to dysfunctional behaviour and at integrating alternate theories within the contingency paradigm. Consequently, an initial focus on established control mechanisms (Tier 3) that have been extensively used and validated (especially within the contingency paradigm) is more realist and feasible. However, emphasis on one tier of MCS may also be too limited, especially if these control mechanisms are predominantly financially oriented (i.e. reliance on budget or accounting performance measures). Thus, analysis of the effects of control systems at different ‘tiers’ may provide a more complete insight.

²⁵ Both Tiers 1 and 2 can be used in the same research, as is apparent in Bisbe and Otley’s (2004) study of the interactive use of budgets, balanced scorecards, and project management systems – which was then combined into an overall ‘interactive use of management control systems’.

In light of the analysis made in this section, the following control sub-systems/control mechanisms will be studied, as a representative “sample” of the organization’s MCS:

- (1) Standard Operating Procedures (Control Sub-System)
- (2) Subordinate’s Participation in Budget/Target Setting (Control Mechanism)
- (3) Reliance on Accounting Performance Measures (RAPM) for Subordinate’s Performance Evaluation – also referred to as Supervisory Evaluation Style or Budget Emphasis (Control Mechanism)

The next section will now analyse the findings/results of studies relating to the three above-mentioned control sub-systems/mechanisms within the contingency paradigm.

2.3. Standard Operating Procedures (SOPs)

A review of the MCS literature reveals that very few studies have considered SOPs independently of the other elements and mechanisms of control system. The contexts, periods and methods in which these studies have been conducted are sufficiently diverse to invalidate strict cross-study comparisons but they do provide valuable insights as to the importance of further investigation of standard operating procedures.

2.3.1. Rockness and Shields (1984)

This study is based on Ouchi’s (1977) organisational control framework, which hypothesises a contingency relationship between task characteristics and organisational controls (Rockness and Shields, 1984, p. 166). More specifically, the importance attached to controls will be a function of the four components of task characteristics: primary ones (knowledge of the transformation process and measurability of the output) and secondary ones (task complexity and task interdependence). Also the organisational controls can be further classified as social, behaviour and output controls. According to Ouchi (1977), SOPs are one major type of behaviour control since they consist of “...*a set of formal rules and operating procedures about how tasks should be performed*” (cited in Rockness and Shields, 1984, p. 167). In a situation where there is a high knowledge of the transformation process and a correspondingly low timely measurability of output, it was hypothesised that behaviour controls would be more applicable. Based on responses from R&D project supervisors in non-profit and profit organisations, a positive and significant association (0.18) between behaviour controls

and knowledge of transformation process was found. Although this study brings evidence of the importance of SOPs in a specific task characteristic and so within a different setting (i.e. research and development organisations instead of traditional “business” units), the absence of an outcome variable (e.g. effectiveness, performance, efficiency) prevents further analysis on the relative “success” of the SOPs/task characteristics combination. In addition, only one item was used to measure the extent of rules and operating procedures (five-point Likert-scale from none to extreme).

2.3.2. Macintosh and Daft (1987)

In contrast to Rockness and Shields (1984), Macintosh and Daft (1987) focus on only one aspect of task characteristics, namely departmental interdependence. Van de Ven et al. (1976) define interdependence as the extent to which departments depend upon each other and exchange information and resources to accomplish their respective tasks. There are three levels of departmental interdependence namely pooled, sequential and reciprocal. Whilst pooled interdependence implies very minimal workflow between departments (or close to unit autonomy or independence), sequential interdependence involves “production chain” linkages between the different units where every output becomes an input for another department. Finally, reciprocal interdependence denotes continuous interchange and coordination between departments to complete the product/service. For example, such level of interdependence will be expected within firms which manufacture only tailored products (Bouwens and Abernethy, 2000, p. 224).

Macintosh and Daft (1987) hypothesised that the extent of SOPs²⁶ is positively correlated to the extent of pooled interdependence among departments, since “..it is in such situations that the bureaucratic techniques of categorisation and impersonal application of rules have been most beneficial” (Thompson, 1967, p. 17). On the other hand, higher levels of interdependence cannot be controlled by SOPs because activities are not standardized, requiring more management intervention, hence leading to a negative correlation hypothesis between the extent of SOPs and the extent of sequential/reciprocal interdependence. Six different measures (Appendix 2.3, No. 6) were used to represent the extent of SOP measures and a positive correlation was found

²⁶ Macintosh and Daft (1987) also investigate the link between interdependence and two other control systems - operating budget and statistical reports - but this section focuses solely on SOPs.

between all the measures, except for “extent of adherence to SOPs to evaluate performance”, and extent of pooled interdependence. In addition, a non-significant correlation was observed between SOPs and sequential interdependence, while a negative association was found between the extent of reciprocal interdependence and SOPs (except for “extent of adherence to SOPs to evaluate performance”). Hence, there is indication of a “reversal of importance” for SOPs in relation to a higher level of departmental interdependence.

In spite of the results fitting the hypotheses, the relationship between department interdependence and SOPs is that of a simple empirical association. Macintosh and Daft (1987, p. 58) do report on the motivational force of the control system and the fact that department managers were highly satisfied with the SOPs. However, this observation was not empirically supported i.e. a fit between SOPs, interdependence and an outcome variable such as manager’s effectiveness, satisfaction or motivation level. As in the case of Rockness and Shield’s (1984) findings, the results of Macintosh and Daft (1987) only bring some persuasive evidence as to the contextual relevance of SOPs. Causality and interaction of SOPs had yet to be empirically demonstrated.

2.3.3. Chow, Kato and Merchant (1996)

Chow et al. (1996) investigated the use of organizational controls and their effects of two forms of dysfunctional behaviour, namely data manipulation and management myopia in two companies: one in Japan and one located in the US. Amongst the studied organizational controls were ‘procedural controls’ which were related to procedures for hiring personnel, spending discretionary monies and making capital expenditures. The control variables were measured in terms of how tight these were operating in the manager’s environment. Based on a questionnaire responses from a sample of 22 managers in each company, it was found that faced with same level of control tightness (including procedural controls), both sets of managers would engage in dysfunctional behaviours (short term orientation and manipulation of performance measures) but as hypothesised, US managers appear to engage more in the dysfunctional behaviours. Nonetheless, this is one of the rare empirical studies that (indirectly) considered SOPs and dysfunctional behaviour. However, the sample size is relatively small and related to two companies only.

2.3.4. Chow, Shields and Wu (1999)

This study examines the relevance of national culture (Taiwan) in affecting the design of, and preference for, MCS sub-systems ranging from participative budgeting, standard tightness, performance-contingent financial rewards to structuring of activities. The latter is of particular interest since it refers to the existence of written policies rules, standardised procedures and manuals which specify how to and sometimes, how not to, perform activities (Chow et al., 1999, p. 447). The operationalisation of SOPs is based on eight items (7-point scale), representing major classes of activities such as the purchase of capital equipment, the hiring and firing of personnel, the sourcing of inputs, and the pricing of outputs.

While the authors expected that SOPs of foreign-owned firms will have adapted to the local conditions and hence be no different than the SOPs of the locally owned companies, the national culture variable is expected to influence on the preference for MCS. In the latter case, the only “contingency” variable would be the ownership of these companies (Taiwanese, Japanese or United States), meaning a *de facto* relationship between national ownership and the respective national culture dimensions (using Hofstede’s scores). Based on the three cultural dimensions of individualism, power distance and uncertainty avoidance, Chow et al. (1999, p. 447) predicted that preference for SOPs will be highest for Taiwanese firms, lowest in U.S. firms and Japanese firms being in the middle. Based on MANOVA and ANOVA tests, it is found that the extent of SOPs is lowest for the Japanese-owned companies but there are no significant differences between U.S- and Taiwanese-owned firms. In the case of SOPs preferences, no significant differences are noted among these three categories of companies. In view of these findings, the authors raise one important caveat, namely the accuracy of Hofstede’s cultural dimensions at the level of individual controls (1999, p. 456) and propose that alternative ways of operationalising and structuring national culture be investigated.

2.3.5. Research on SOPs: Conclusion

A detailed review of the few studies that have investigated SOPs has been provided. The contingency variables that were considered were task characteristics, departmental interdependence and national culture. Positive associations were found between SOPs

(even if differently operationalised) and (i) knowledge of the transformation process, and (ii) departmental pooled interdependence. On the other hand, evidence on the impact of national culture on the extent of, and preference for, SOPs remains mixed.

Surprisingly, direct empirical evidence on the impact of standard operating procedures in organisations appears very scant. It could be argued that the non-financial nature of the sub-system may have caused this lack of interest among accounting researchers. However, it has to be acknowledged that other studies indirectly consider SOPs by including them within broader MCS 'label'. For example, Widener (2007) examines boundary systems in organizations, which could arguably include SOPs, but her variable measurement is limited to measuring perceptions on the organization's code of business conduct (2007, p. 785). Overall, SOPs are an unavoidable set of procedures in public and private organisations. The increasing computerisation and automation of enterprises has resulted into a significant part of these procedures being inbuilt and monitored by software applications. In such a context, the adequacy and effectiveness of such a prominent, if not omnipresent, control sub-system should be of considerable interest, within a contingency and/or institutional paradigm. Therefore, by selecting SOPs as control sub-system, this study aims at providing more detailed insights on the use of SOPs in enterprises.

2.4. Budgetary Participation

Budgetary Participation has been one of the most researched topics in management accounting for over 40 years (Shields and Shields, 1998, p. 49). Indeed, the extent to which a subordinate should be involved in budget/target setting is an important component within an organisation's management style. The review will primarily be based on Shields and Shields' (1998) categorisation of budgetary participation empirical studies (surveys and experiments), namely on:

- (1) The direct or indirect effects of participative budgeting on dependent variables,
- (2) The effect of moderator (contextual) variables on the relationship between budgetary participation and a dependent variable,

- (3) Budgetary participation acting as a moderator variable (i.e. hypothesised as a contextual factor) on the relationship between an independent variable and a dependent variable²⁷.

Although the most common assumed reasons for budgetary participation are to increase motivation and sharing of information, Shields and Shields (1998, p. 50) note that studies have also considered a host of other outcome variables such as performance, attitude, tension and satisfaction. In addition, the pioneering study of Argyris (1952) has also outlined various negative behavioural aspects of the budgeting process. This has resulted in research on the budgetary slack phenomenon (Schiff and Lewin 1968, 1970; Lowe and Shaw, 1970; Onsi 1973). Budgetary slack, as an outcome of budgetary participation, has indeed become one other focal topic within the budgeting literature. In view of its potential similarities with the proposed dependent variables for this study (dysfunctional behaviours), a fourth research category will focus on the budgetary participation-slack (with or without moderator variables) relationship.

2.4.1. Direct or Indirect Effects of Participative Budgeting

Given that motivation was one of the main objectives underlying subordinate participation in setting budgets, earlier studies have considered direct relationships between the extent of participation and motivational-led variables. For example, Searfoss (1976), Kenis (1979), Merchant (1981) found a significant positive relationship between participation and motivation. Also, Brownell and McInnes (1986) used path analysis to model motivation as intervening between participation and performance (i.e. an indirect relationship). However, no direct positive association was noted between participation and motivation whereas Kren (1990) only observed a marginally significant positive relationship in an experimental setting. Murray (1990, p. 106) argues that the way motivation was differently operationalised in these studies may have influenced the results since the studies focused on different aspects of motivation, namely intrinsic value associated with goal accomplishment, effort expended and the value associated with both intrinsic and extrinsic outcomes weighed by their expectancies. Also, there are some strong arguments for indirect relationships between

²⁷ Most of the studies involving budgetary participation and another independent variable have been related to investigating budget emphasis (or performance evaluation style). Since performance evaluative style is the second control mechanism of interest in this study, empirical findings in this respect will be considered later in this chapter (Section 2.5).

participation and motivation e.g. through goal commitment. Indeed, Locke (1968, p. 185) asserted that the *“most direct effect of participation is probably to commit the subject to the decision reached.”*

In relation to the findings on other outcome variables, role ambiguity was significantly negative related to participation (Chenhall and Brownell, 1988) while managerial attitude was positively related to participation (Mia, 1987; Milani, 1975; Merchant, 1981). Yet, Ivancevich (1979) found no relationship between attitude and participation. More controversial findings are however related to the participation-performance link. Whilst Brownell (1982a) and Brownell and McInnes (1986) showed positive relationships in their research, negative relationships were observed (Kenis, 1979; Steers, 1979), and even justified on the grounds that authoritarian target setting leads to better performance (cited in Mia, 1988, p. 466). In view of such inconsistent results, Shields and Shields (1998, p. 50) blame the lack of theoretical models and the use of “performance” as a sole dependent variable (i.e. without any mediating or indirect “outcome” variable) in budgetary participation research. However, the use of indirect relationship models to link budgetary participation to performance, namely through path analysis techniques, have not been entirely satisfactory. For example, Nouri and Parker (1998) have investigated the mediating effect of organisational commitment, as suggested by Locke (1968). Based on responses from functional managers within a large multinational corporation and a self-rated weighted average job performance (adapted from Govindarajan and Gupta, 1985), the results only indicate partial mediation via organisational commitment but still a significant positive direct relationship between participation and performance.

Shields and Young (1993) attempted a survey-based research on participation-performance relationship via one mediating variable: budget based-incentives. Their respondents were corporate controllers from Standard & Poor 500 firms. While the path analysis (1993, p. 271) displayed positive association between participation and budget-based incentives, the extent of budgetary participation was found not to have any indirect or direct impact on performance. Given the prominence of financial measures in the dependent variable, the absence of significant correlation with other variables in the model is not very surprising. Irrespective of sample size problem raised by the authors, the design of the performance construct in Shields and Young (1993) may have resulted into very different results, compared to those of Nouri and Parker (1998).

Kren (1992a) investigated the influence of job-relevant information (JRI) as an intervening variable between participation and performance. JRI refers to the information which helps a manager to improve his or her action choice through better-informed effort (Kren, 1992a, p. 512). In light of previous studies supporting a direct JRI-Performance link (Campbell and Gingrich, 1986), it is argued that budgetary participation, by involving further subordinates in the decision making process, will increase JRI. Using path analysis, it was found that (i) direct participation-performance relationship was not significant but (ii) path coefficients for participation to JRI and JRI to performance were significant.

Finally, the study by Shields et al. (2000) principally looks at the inter-relationships between participative standard setting and performance via the mediating influences of two control mechanisms/attributes (standard tightness and standard based incentives) and that of job-related stress. However in the context of this review, it would be relevant to note that a direct positive and significant relationship was also found between participative standard setting and job performance. Furthermore, as hypothesised by Shields et al. (2000, p. 196), job-related stress does empirically prove to be a mediating variable of interest for linking control systems to job performance. Job performance was based on self-ratings - adapted from Mahoney et al's (1963) eight dimensions of managerial activity - rather than on financial measures.

In conclusion, in spite of some conflicting findings, the participation-performance linkage appears to have validity, in spite of intuitive comments (notably by Shields and Shields, 1998, p. 50) on the irrelevance of such links. Participation-motivation links have been viewed as more reasoned and have been validated while organisational commitment has proved to be a mediating variable of interest. However, the use of path analysis to identify indirect relationships has not explained more than the direct ones, except for Shields et al. (2000) and Kren (1992a). The existence of some inconsistent or weak results in the budgetary participation has caused researchers to invoke the influence of moderator variables using interaction models.

2.4.2. The Effect of Moderator Variables on Budgetary Participation.

An analysis of Shields and Shields' (1998) inventory of budgetary participation studies reveals that a total of 23 moderator variables have been tested in the relationship between budgetary participation and a dependent variable (other than budgetary slack). A summary of the previous studies researching the most relevant or most important moderator variables is presented below.

2.4.2.1. Locus of Control

Brownell (1981) and Brownell (1982b) investigated the influence of subordinate's attitudes (internals vs. externals) in the participation-performance relationship. Given that "internals" believe that they can shape the outcome of events by their actions or choices, it is argued that the interaction of "internals" will enhance the positive relationship between budgetary participation and performance while "externals" will negatively impact on the same relationship. Brownell (1981) and Kren (1992b) used a lab experiment while Brownell (1982b) gathered survey data. A significant interaction was noted in first instance while a marginally significant one was observed for the second case. In addition, the "internals" were found to be more satisfied than the "externals" when required to participate in the budget setting process (Brownell, 1982b). Whilst locus of control refers to a personality trait and thus to an individual's attitudes, it is still unclear as to whether people would irremediably fall in one of these two categories and if even so, this attitude be exactly similar in all situations (social, professional and personal). More specifically, it may be argued that the relative specificities of the work environment may interact with influence locus of control. For example, the task uncertainty faced by the individual at work may interact with personality and attitudes. In short, "...the degree to which individuals accept personal responsibility for what happens to them." (Kren, 1992b, p. 992) may itself be affected by the degree of complexity, difficulty and variability exhibited by the task at hand.

2.4.2.2. Organisational Characteristics - Managerial Level, Functional Area and Size

Dunk (1992) examined the participation-satisfaction relationship in relation to the manager's hierarchical level, as he believed the inconsistencies noted in the link

between budgetary participation and satisfaction may be associated to differences in authority across managerial levels. As the manager's hierarchical level increases, it is believed he/she would be more receptive (and hence satisfied) because the budgetary participation process allows him/her to exert control over activities. Using a sample of 26 manufacturing managers and the Minnesota Satisfaction Questionnaire to measure satisfaction, a significant regression coefficient is found for the interaction term (participation x managerial level). Dunk (1992, p. 215) concludes that such results suggest that participation is more effective in enhancing job satisfaction of high-level managers than that of low-level managers. In spite of the seemingly positive results obtained from this study, there are some strong elements of contention. Firstly, previous literature has given much focus on the motivational and the transmission of information aspects of budgetary participation. In this perspective, the use of budgetary participation as an opportunity to exercise managerial authority may not be a very important rationale for participation, since there are a number of instances when managers are required (or expected) to exercise their authority. Secondly, the results seem to indicate that budgetary participation must be only limited to upper-level management to ensure greater satisfaction: in contrast to the main rationale of budgetary participation i.e. the commitment of all managerial staff to specific targets/plans. Finally, the use of multiple regression analysis (with 2 independent and the interaction term variables) for a sample size of less than 30 observations may have generated misleading results.

Merchant (1984) investigated department size effects as well as the extent of functional differentiation²⁸ as moderator variables for budget-related behaviour (BRB). The latter included a sub-dimension (three factored items) focusing on budgetary participation. The argument proposed (1984, p. 293) was that the size and diversity affected a manager's capability to use oral communication and direct supervision in view of the increasing number of information flows. Thus, budgetary participation, among other BRBs, becomes a more useful control mechanism in larger and more diverse departments. An initial finding was that participation is positive correlated to departmental size and the department's extent to functional differentiation. Then, using correlation and sample splits, the "fit" between participation and size (and functional differentiation) on performance was computed. Results (1984, p. 303-304) reveal the

²⁸ Merchant (1984, p. 295) viewed functional differentiation (within the manufacturing department) in terms of the extent to which specific manufacturing areas of responsibility (such as purchasing, control, product line redesign, inventory) were clearly attributed to someone in the department.

existence of the moderating effect of departmental size and functional differentiation (stronger positive associations between participation and performance for larger and more differentiated departments). These findings confirm prior interactions that Merchant (1981) earlier found between size, budgetary participation and performance.

In a similar vein, Brownell (1985) considered the influence of functional areas (marketing vs. R&D departments) on the budgetary participation link to performance. It is contended that the each functional area is subject to different environmental conditions (1985, p. 502), captured by the two main dimensions: environmental complexity and dynamism (adapted from Duncan, 1972), which in turn impacts on task uncertainty. However, the environmental scores were not found to be significantly different between the two sub-units, except for a higher environmental complexity dimension for R&D departments. In this respect, positive effects on management performance were noted for the R&D department while this was not the case for the marketing function.

In spite of the significant empirical evidence supporting the relevance of the above-mentioned contextual variables, the rationales used in some of the studies (Merchant 1984; Brownell, 1985) seem to relate to more fundamental variables of interest. For example, department size, extent of departmental functional differentiation or functional area differences all point to one more fundamental contextual dimension, namely task uncertainty: a key contextual variable to be reviewed in Section 2.6.1

2.4.2.3. Environmental Uncertainty, Market Factors and Environmental Volatility

Evidence on the moderating impact of the “environment” was already implicit (via functional areas) in Brownell’s (1985) findings. Merchant (1984) also looked at the effect of market factors (measured via Product Life Cycle and Market Position) on the participation-performance relationship. It was hypothesised that departments involve with mature/declining products and those being in a strong market position (market leader) would exhibit higher participation-performance correlations compared to emerging/growth-products and weak-market position departments. However, no evidence was found of such dichotomy (1984, p. 305). Also, as a follow up of Kren’s (1992a) study on the participation-Job Relevant Information (JRI)-performance path analysis (refer to Section 2.5.1), environmental volatility was used in the study to

examine changes in path relationships. More specifically, it was predicted that as volatility increases, stronger relationships should be observed in the path coefficients (1992a, p. 513). However, no significant differences were noted on such coefficients, when the two sub-samples (split at the median level of volatility) data were computed.

Govindarajan (1986) tested for the interaction of environmental uncertainty in the relationship between participation and various dependent variables such as performance, motivation and attitude²⁹. The participation construct was based on various factored items from the BRB questionnaire, resulting into two main items: attention to budgeting and participation in the budget setting process. The study obtained 77 responses (84%) from heads of departments, with half from the production area. Their immediate supervisors also provided data on the subordinate's performance and level of environmental uncertainty relative to the subordinate's department. In contrast to previous studies examining the influence of environmental factors, the results indicate a positive interaction environmental uncertainty on the participation-performance (and attitude) relationship (1986, p. 510), thus demonstrating the relevance of environmental uncertainty. In addition, the performance measure was more reliable as superiors were asked to rate their subordinate's performance. However, the fact that superiors were also asked to rate the department's environmental uncertainty levels may raise some construct validity issues, especially in light of Tymon et al's (1998, p. 42) comments on PEU being a strategic (i.e. top management level) construct rather than a middle management one. In addition, the prominence of the production/operations/R&D functional areas (61% of respondents) could have influenced the level of uncertainty. Nevertheless, Govindarajan's (1986) results are more persuasive and supportive of the influence of environmental uncertainty and other related factors.

2.4.2.4. Product Standardisation and Process Automation

Merchant (1984, p. 294) argued that the level of production technology impacts on the budget participation-performance relationship. This is related to the task uncertainty aspect, whereby a routine and repetitive production process will imply easier coordination via formal control mechanisms such as participative budgeting. In contrast,

²⁹ Govindarajan's (1986) findings on budgetary slack will be reviewed in Section 2.4.5.2.

a custom-made production and less process automation may call for more informal methods of control, such direct supervision (1984, p. 292). However, no significant interaction was found for the production technology variable. Whilst Merchant (1984) subsumed process automation and standardisation within production technology, Brownell and Merchant (1990) re-examined the individual interactions of these two contextual variables on budgetary participation. In contrast to Merchant's (1984) "interaction" arguments, Brownell and Merchant (1990, p. 389) assert that the budgetary participation-performance relation will be accentuated when product standardisation is low. The argument was that participation offers opportunities for exchange of experience and knowledge to assist in resolving uncertainties in less standardised production. Based on a participation measure similar to BRB sub-dimension (refer to Merchant, 1984), a significant interaction between low product standardisation and high participation leading to higher performance was observed. Whilst it is not denied that "...pooling the experience and knowledgeoffers the potential to assist in resolving uncertainties" (1990, p. 389), this does not necessarily mean that positive outcomes will be generated (e.g. impacted on performance) by this process – since a standard budgetary process is not construed as an "open forum" to resolve other internal issues.

In this respect and in spite of the positive results obtained, it appears that earlier arguments/hypothesis by Merchant (1984), who invoked task uncertainty influences to justify the influence of product standardisation, may have more credence than those of Brownell and Merchant (1990). In addition, the existence of a process automation interaction was questioned, in view of the competing arguments as to the direction (sign) of such interaction. Firstly, automated controls could reduce the role of budgetary controls (1990, p. 389) and thus negate the contribution of budgetary participation to departmental performance. Secondly, the existence of higher levels of process automation would be linked to higher flexibility and more choices in matters such as work scheduling. Consequently, the manager has more scope for a meaningful participation in setting manufacturing budgets. But the results eventually showed no significant interaction for process automation (1990, p. 393). As in the case of product standardisation, Brownell and Merchant (1990) may have made use of unsubstantiated linkages between automation to participation (e.g. flexibility to more choices in matters or automated controls leads to less budgetary ones) that are more suggestive (if at all valid) of antecedent relationships rather than a moderating one. In addition, the setting

up of automated controls in the context of process automation was viewed as sign of “phasing out” for budgetary controls within the same department. In conclusion, the existence and direction of the influence of process automation and product standardisation on the participation-performance relationship has yet to be confirmed, and indirect (or intervening) effects may have to be investigated.

2.4.2.5. Motivation and Attitude

Mia (1988) notes that motivation (to work) and managerial attitude (towards their job and company) were traditionally used as outcome variables in budgetary participation studies (1988, p. 466), but some conflicting results (e.g. from Ivancevich, 1979) have led the author to believe that motivation and attitude should not be modelled as such. Also, given that previous findings (Brownell and McInnes, 1986) did not confirm the intervening influence of motivation in budgetary participation-performance model, Mia (1988) proposes an interaction model for attitude and motivation i.e. instead of the traditional idea that participation leads to motivation and attitude, the level of motivation and attitude exhibited by subordinates is expected to drive the participation-performance relationship. This argument is based on Festinger’s (1957) theory of cognitive dissonance, which implies that “...employees who have a more favourable (high) attitude or motivation develop a cognitive dissonance or psychological uneasiness if their performance is low (below expected level) and to reduce this dissonance, they attempt to improve their performance” (Mia, 1988, p. 467). Since budgetary participation is a control mechanism that is supposed to assist in improving performance, managers displaying high attitude and motivation will accentuate the participation-performance link whereas those with low attitude and motivation will impact negatively on the participation-performance relationship. The results indicate significant coefficients for both participation-motivation and participation-attitude interaction variables. In addition, the analysis of partial derivatives for both equations (1988, p. 471) indicates non-monotonic effects. Also, the researchers had access to the superior’s evaluations of subordinate performance instead of self-rated scores.

This study sheds some light in view of previous results gathered from the traditional motivation/attitude linkages discussed in the precedent section (Section 2.4.1). Given the wide-ranging impact of motivation and attitude in participative budgeting, their

combined effect on alternative dependent variables such as slack (or dysfunctional behaviours, in general) could be of interest.

2.4.2.6. Budget Favorability and Agreement on Evaluation Criteria

In contrast to Mia's (1987) argument that managerial attitude should be a moderator variable, Magner et al. (1995) investigated the effects of budgetary participation on two related attitude-oriented dependent variables, namely trust in supervisor and organisational commitment. The contextual variable of interest was budget favorability i.e. the subordinate's "*...perception about the fairness of the procedures (budgetary participation process) by which the outcomes (budget/targets) were established*" (1995, p. 612). This interaction between outcomes and procedures was predicted by the referent cognitions theory (RCT), whereby resentment can be expected if the subordinate believes that a more favourable budget could have been set if the procedures had been fairer (Magner et al., 1995). Indeed, it is acknowledged that budgetary participation mechanism does have an inherent "unfairness" given that the process (and outcome) is eventually moderated or censored by a superior. Based on a sample of 53 managers, the interaction variables were found to be significant in relation to both attitudes towards the supervisor (trust) and the company (organisational commitment). In effect, managers who have received unfavourable budgets have less negative attitudes when they have participated in the budget compared to those who have not participated (1995, p. 616). This study focuses on the psychological aspects of a control procedure, namely the extent of budgetary participation. One possible issue could be the diversity of the respondents. If one considers Dunk's (1992, 210) argument that exercise of authority and control over budgets are likely to be higher as the managerial level increases, than if the sample is predominantly made up of higher-level management respondents³⁰, higher budget favorability and positive attitudes would have been noted even if participation was low.

A second attitude-oriented contextual variable is extent of agreement on evaluation criteria between subordinates and superiors. Dunk (1990) also justifies this study on the grounds of the conflicting directions in the associations between participative budgeting and performance. Rooted within the agency perspective, Dunk (1990) viewed

³⁰ This is not specified in the research paper.

participation as the sharing of local information with the superiors and considers that the “...value of participative budgeting emanates from the transmission of information that takes place” (1990, p. 172). Indeed, subordinates would in effect be made aware of the superior’s evaluation criteria and agreement on those criteria would allow the subordinate to focus on specific targets/activities, while neglecting others. The author links such activities to slack building and assert that performance would be accordingly affected by such interaction. Hence, Dunk (1990, p. 173) hypothesises that a higher (lower) degree of participation and a higher (lower) extent of agreement on evaluation criteria between subordinates and superiors will cause lower performance. Lack of congruence between the two independent variables will ensure higher performance. Whilst the findings confirm a statistically significant and negative interaction coefficient, the study appears fraught with issues. Firstly, the power of the regression ($R^2 = 41\%$) is unusually high for interval-level data and could be related to the sample size ($n=26$). Also, as earlier mentioned in a review of contextual variables (Section 2.1.5), the agreement on evaluation criteria was measured using Hopwood’s (1972) traditional RAPM construct; a purpose for which the original RAPM measure may not have been adequate. In addition, the argument that more slack means less performance (i.e. a direct relationship) remains debatable (Dunk and Nouri, p. 74, 1998) since there is sizeable part of the slack literature that believes in the beneficial effects of slack³¹. In fact, slack perhaps could have been a more relevant dependent variable in this study.

Furthermore, in the context of agency theory, it would have been perhaps more relevant to consider the level of information asymmetry between subordinates/superiors and its interaction with participative budgeting. Dunk (1995) eventually considered this and found a significant interaction for information asymmetry. In conclusion, budget favorability appears to be a promising and theoretically sound variable but needs to be further validated in view of the possible bias in the sample. In contrast, Dunk’s (1990) statistically significant coefficients for the interaction of the agreement on evaluation criteria may not be enough to avoid more fundamental criticisms relating to the construct measurement and theoretical underpinnings of his research.

³¹ For example, refer to Merchant and Manzoni (1989), Merchant (1989), and Van der Stede (2000).

2.4.2.7. National Culture

Further to Hofstede's (1980) findings on cultural dimensions, there has been some investigation into the influence of cultural attributes in the effectiveness of participative budgeting. Harrison (1992, p. 3) argues that two of these four cultural dimensions³², namely power distance (the extent to which society accepts inequalities and does not challenge hierarchies i.e. high PD) and individualism (the relationship between an individual and his/her fellow individuals in society), are of direct relevance to budgetary participation. For example, Hwang (1989) found that participation did not affect motivation in high power distance countries (Singapore) compared to low power distance countries (Australia). A subordinate's participation in target/budget setting is deemed to be a "culturally awkward" practice in high PD countries and thus would not have any bearing on motivation. Insofar as individualism is concerned, participative budgeting would be more effective in a low individualism setting (e.g. China) because the participation process implies an attempt at collective agreement whereas participation in a high individualism society (e.g. USA) would only reveal irreconcilable differences between the various people involved in the process (subordinates and superiors). Chow et al. (1999) confirmed this prediction.

O'Connor (1995) used national culture dimensions (as a proxy) and arguments to investigate the influence of organisational culture on budgetary participation usefulness. A high power distance country was selected (Singapore) and the selected dependent variables were role ambiguity and superior/subordinate relationship. The foreign-owned subsidiaries were compared to local ones, and the former were expected to display lower power distance (O'Connor, 1995, p. 387). Thus,

"...for organisations with a high (low) power distance culture, it is expected that budget participation will result in increased (decreased) role ambiguity and decreased (increased) trust and respect for the superior." (1995, p. 388)

Based on a sample of 125 managers, the study found mixed results for participation-ambiguity relationship. The author also used two different measures of participation (Milani, 1975 and Hofstede, 1968) to obtain some cross-validation (1995, p. 389) but the interaction term was not found to be significant for Milani's instrument. It was also

³² The other two dimensions are uncertainty avoidance and masculinity.

barely significant ($p=0.10$, Table 5, p. 393) for Hofstede's measure of participation (negative sign, as expected). In addition, no significant interaction was observed for the 'participation-extent of superior/subordinate relationship' model.

The impact of national culture on the effectiveness of budgetary participation has been partly demonstrated (Harrison, 1992; Chow et al, 1999) and organisational culture needs however to be further researched in view of the mixed results obtained so far. Also, Hofstede's national culture dimensions assume that countries are "made up" of homogeneous societies and are not subject to external 'foreign culture influences'. As suggested by Lau and Buckland (2000, p. 37), the effect of diversity (such as ethnic background or religion) within national culture has not been widely considered, in spite of the growing relevance of such diversity in various countries. Finally, the notion of 'culture' (as measured by Hofstede) has been recently challenged (e.g. Baskerville, 2003)

2.4.2.8. Job Difficulty

In a previous section of the participative budgeting review (Section 2.4.2.2.), it was argued that the moderating variable being used (e.g. functional area) was in fact related to a more fundamental and relevant one, namely task uncertainty. Mia (1989) partly explores the possible relevance of task uncertainty by using the term "job difficulty", which is a sub-dimension of task uncertainty³³. He contends that a job is difficult because of its complexity, heterogeneity, unpredictability or because of its changing operational technology (Mia, 1989, p. 348). In a high job difficulty situation, a high level of budgetary participation will provide opportunities for exchange of information and such interaction would be expected to generate better performance and higher motivation. On the other hand, a mismatch between job difficulty and participation is predicted to result into lower outcome for the above-mentioned dependent variables.

The study used performance information provided by the direct superiors of 62 respondents (76 for participation-motivation model). The interaction term was significant and positive (non-monotonic) for the participative-performance model whilst this was not the case for motivation. Surprisingly, motivation is not related to budgetary

³³ The sub-dimension is more commonly referred as "task difficulty" but the construct measurement is exactly the same i.e. a seven-item instrument from Van de Ven and Delbecq (1974).

participation (correlation matrix did indicate weak and non-significant coefficient) while previous studies had shown better relationships with this dependent variable rather than with performance. Insofar as the contextual variable is concerned, it is worth noting that Lau et al (1995) did argue for, and demonstrated, the primacy of task (or job) difficulty over task uncertainty. However, the relevance of task uncertainty in participation-dysfunctional behaviour relationship remains to be investigated.

2.4.2.9. Concluding Remarks

Research into the contextual adequacy of budgetary participation remains the most popular area of the budgetary participation studies. A review of the most important contingency variables has been presented. While there are strong evidence and arguments as to the influence of attitude, motivation, job difficulty, budget favorability, and national culture, there are still mixed results for environmental uncertainty (or other market-related variable). Also, despite showing some statistically significant interactions, some contingency variables such as locus of control, functional area, size, agreement on evaluation criteria could in fact be affected by antecedent variables (e.g. task uncertainty) driving the interaction. In addition, the related theoretical linkages were less clear and thus open to interpretation.

2.4.3. Budgetary Participation Modelled as a Moderator Variable.

Brownell (1983a, 1983b) and Dunk (1993b) investigate the potential positive effects of budgetary participation in controlling the “negative” consequences attributed to organisational practices and job-related tension. In all three studies, the authors refer to the benefits of budgetary participation as ways to gain subordinate’s acceptance of targets (Brownell, 1983a, p. 460), to encourage trust between subordinates and superiors (Brownell, 1983b, p. 309) and to reduce stress in the job environment (Dunk, 1993b, p. 578).

In the case of Brownell (1983a), it was hypothesised that management by exception (MBE)³⁴ had a negative impact on motivation since the superiors will typically sanction

³⁴ In Brownell’s (1983a) study, MBE is viewed as a system of control that allows the manager to be spared the task of reviewing performance when things are going well, so as to devote his attention only to those areas which really require his managerial attention (1983a, p. 456).

negative variances but there would not be equal considerations for “correct” performance or positive variances. Therefore, based on previous findings relating to the positive interaction of budgetary participation on performance evaluative style, the contingency hypothesis predicted that budgetary participation would mitigate the effects of MBE on motivation (1983a, p. 460). However, very little and insignificant direct MBE-motivation relationship was found. Similar findings were observed for the participation-MBE interaction. The author (1983a, p. 469) attributes these poor results to the measuring of motivation and the absence of more important control sub-systems in the model which could be interacting with MBE. It can be however argued that the (early) concept of MBE is closely associated to Simon’s (1995; 2000) concept of the diagnostic use control systems and that the ‘more important control sub-systems’ mentioned in Brownell’s paper could be examples of interactive and/or use, of controls which are predicted to complement the diagnostic use of controls in the organization – as part of the dynamic tension between these two categories of controls (e.g. Simons, 1995; Henri, 2006).

Brownell (1983b) investigated the effect of leadership style (consideration and initiation of structure³⁵) on performance. Previous literature had highlighted the direct effect of the “leadership consideration” dimension on satisfaction (Boyles, 1968) but also the interacting effects in the relationship between the other leadership dimension (initiation of structure) and satisfaction (Dessler, 1973). However, Brownell (1983b) proposed that budgetary participation, being a more “democratic” exercise, will not “fit” with a high initiation structure and with a low consideration leadership style. Several noteworthy results arose from the various ANOVA tables. Firstly, considerate leadership behaviour was associated to higher subordinate satisfaction, irrespective of budgetary participation, while the relationship to performance was only significant in instances of high budgetary participation. Secondly, lower initiating structure also caused higher satisfaction but this did not occur in a high budgetary participation situations. Brownell (1983b, p. 317) concluded that structure might become redundant in circumstances where subordinates are highly involved and influential in budget formulation.

Finally, Dunk (1993b) examined the effects of job-related tension (JRT) on managerial performance, based on previous arguments by Hirst (1981). Dunk (1993b, p. 578)

³⁵ The definitions of leadership style and its dimensions are presented in Appendix 2.1.

contended that budgetary participation allowed subordinate managers to feel or exercise more control. In addition, the author expected that participation led to more clarification in the path-goal requirements through an information exchange between superiors and subordinates (1993b, p. 578). Hence, it was hypothesised that, in high participation situations, the negative relationship between JRT and performance would be significantly lower. In contrast to other MCS studies, Dunk (1993b) assumed a curvilinear relationship between JRT and performance but the coefficient for the quadratic variable was not significant. In conclusion, the moderating influence of budgetary participation in the cases of MBE and JRT was not empirically demonstrated.

2.4.4. Budgetary Slack as a Consequence of Budgetary Participation

According to Dunk and Nouri (1998, p. 73), “*..slack may be defined as the intentional underestimation of revenues and productive capabilities and/or overestimation of costs and resources required to complete a budgeted task*”. It is noted that the slack phenomenon can also be viewed within an agency paradigm, which predicts the agent’s potential to shirk and “*..assumed to be guided by his/her own self-interest*” (Merchant, 1985a, p. 202).

Within the MCS literature, there has been more interest in the impact of budgetary participation on slack and how this is influenced by contingent factors. Lowe and Shaw (1968) contend that managers build in slack if they perceive that formal rewards/sanctions are linked to budget attainment; a reaction aimed at protection their own interests and which Lowe and Shaw (1968) consider to be economically rational (cited in Dunk and Nouri, 1998, p. 74). In a similar vein, Onsi (1973, p. 535-536) asserts that slack is not necessarily undesirable, implying some contingency interactions such as the impact of “good” business conditions. On the other hand, Schiff and Lewin (1970) are less conditional in their understanding of slack. To them, budgetary participation inherently leads to the building of slack whilst other researchers (such as Young, 1985 and Lukka, 1988) argue that participation merely increases the opportunity, rather than the extent, of slack. In addition, Lukka (1988) is credited with the formulation of a theoretical framework of budgetary biasing. This term encompasses two slack dimensions, namely budgetary slack (as defined earlier) and upward bias, which is the deliberate overstatement of an expected performance in the budget (1988, p. 283). More recently, the debate seems to be increasingly polarized on whether

budgetary slack is dysfunctional or function in relation to the overall (or long-term) effectiveness of the organization (e.g. Davila and Wouters, 2005)

Consistent with the format applied previous review sections, the evidence on performance-budgetary slack relationships will be considered in two parts; one considering research focusing on direct relationships between participation and slack while a second section will look at the impact of moderating (contextual) variables³⁶.

2.4.4.1. Budgetary Participation-Budgetary Slack: Direct Relationships

Onsi (1973) used factor analysis to identify several behavioural variables affecting budgetary slack. Amongst other results, he found a strong positive correlation between an “authoritarian top management budgetary control system” and slack attitude whereas participation was negatively related to “less need to create slack” (1973, p. 546). Onsi (1973) interpreted the latter findings as an indication of better communication between hierarchical levels and less pressure on the subordinate to create slack. Whilst Cammann (1976) confirmed the slack-reducing characteristic of budgetary participation across functional areas, Collins (1978) was unable to duplicate Onsi’s results (cited in Govindarajan, 1986, p. 500). Merchant (1985a, p. 207) obtained results consistent with Onsi (1973) and Cammann (1976) whereas Young (1985) found a positive relationship between participation and slack.

In the backdrop of such inconsistent findings, Merchant (1985a, p. 209) raised one major limitation in the measuring of the concept of slack. Since slack can be, in abstract, viewed as “unethical”, respondents to the slack question may have been influenced by the social desirability bias and hence, may have minimised acknowledgement of slack in response to ethically oriented attitudes. In addition, Lal et al. (1996) argued that Merchant’s (1985) study may have suffered from non-random sampling and replicated his hypotheses using random samples. Nevertheless, the budgetary participation-slack relationship was still found to be negative and significant (1996, p. 490).

³⁶ Slack has been operationalised as either *extent* of slack (organisational-level variable) or *propensity to create* slack (individual or attitude-based variable). Whilst they are important differences between these two constructs, such distinctions will not be considered at this stage of the review and the term “slack” would refer to both instances. The nuances involved will be addressed in Section 2.8, when reviewing the different dependent variables used in contingency-based research.

The evidence seems to indicate strong support for a direct and negative relationship between budgetary participation and slack. However, authors such as Galbraith (1974) and Govindarajan (1986) believe that such relationship may be dependent upon contextual factors such as task and environmental uncertainty. Furthermore, it is without doubt that there are still strong theoretical reservations (Cyert and March, 1963 and Hopwood, 1976), which assert that slack has more negative implications than positive ones.

2.4.4.2. Budgetary Participation-Budgetary Slack: Contingency Relationships

Galbraith's (1973, 1974) asserts that organisations respond to uncertainty by increasing the resources available, rather than managing existing resources efficiently. For Galbraith (1973, 1974) and Govindarajan (1986), these extra resources are slack resources that act as a "buffer" and reduce information processing needs. However, such practice will eventually impact negatively on performance standards. Galbraith (1973, 1974) considered budgetary participation as means to handle the subordinate's information-processing needs and thus, in times of high (low) uncertainty, a high (low) participation level will ensure sufficient information availability and lesser potential for slack. In other words, the mismatch between participation and uncertainty would create more slack. Govindarajan (1986) investigated this hypothesis, using perceived environmental uncertainty (PEU) as the contextual variable, and found a significant negative interaction term. However, with regards to Tymon's et al. (1998) comments on PEU and the respondent's hierarchical level (middle managers), it is contended that PEU may not be the relevant contextual variable of interest. In fact, Galbraith's information-processing framework refers to task uncertainty rather than environmental uncertainty in general (1973, p. 25-26). Dunk and Nouri (1998, p. 80) present arguments on the interactive effect of task uncertainty on the participation to slack relationship. More specifically, the authors consider the interactive effects of the two sub-dimensions of task uncertainty, namely task difficulty and task variability, but their interpretation of Galbraith's early arguments is different from that of Govindarajan's (1986). Dunk and Nouri (1998, p. 79) contend that since a low (high) task difficulty would mean (lack of) clearly understood procedures and practices, i.e. high (low) task knowledge, there would be little (extensive) room for slack. However, the same interaction is not expected for task variability, since it is viewed as not having an impact on the needed slack resources. Dunk and Nouri (1998) conclude by formulating

theoretical propositions to model task difficulty and variability as moderating variables for the participation-slack relationship. These propositions will be adapted to this study and further elaborated in the Chapter 4. More recently, Davila and Wouters (2005) examine the counter-proposition that slack is in fact useful to the management in certain conditions. Based on a case study of four logistic sites of a manufacturing company and using both qualitative and quantitative data, the authors (2005, p. 606) conclude that the company's budgetary process encourages budgetary slack when the company expects the processes to be under demanding conditions (i.e. high task or environmental uncertainty). This 'encouragement' is embedded in the budgeting assumptions used to calculate costs, thereby allowing managers to focus on other short-term demands/issues (e.g. refer also to Van der Stede, 2000). It was argued that budgetary slack appears to be intentionally designed in such a way to influence the allocation of organizational attention. The authors also assert that the process of slack creation appears to be more elaborate and more subtle than the mere acceptance of high budget costs. This recent evidence is partly consistent with earlier discussions and predictions made by Argyris (1990). In this paper, Argyris (1990) reviews his original discussion on dysfunctional behaviours, labelling them as 'organizational and individual defensive routines' (1990, p. 506). According to him, these are activated by the managers when they are facing potential or actual embarrassment.

Dunk (1993b) examined the interactive effects of budget emphasis and information asymmetry on participation-slack link. Based on Lowe and Shaw's (1968) expectation that slack is conditional upon subordinate's perception that budget performance will be linked to their performance evaluation, Dunk (1993b) hypothesised that a higher budget emphasis coupled with high budgetary participation will create more slack. In addition, the degree information asymmetry between subordinates and superiors is viewed as a further moderating variable. Hence, a multiple interaction between three variables is being investigated. Based on a sample of 72 respondents, the study surprisingly reported a negative coefficient for the three-variable interaction term, meaning that "...slack is low when participation, information asymmetry and budget emphasis are all high" (1993a, p. 405-406). Hartmann and Moers (1999, p. 304) noted that the use of three-way interactions have led to interpretation and complexity issues, especially in the absence of a clear theoretical background supporting such relationships. According to the authors (1999, p. 305), such issues are present in Dunk's (1993b) paper. Furthermore, as acknowledged by Dunk (1993b) and consistent with Merchant's (1985)

previous remarks, responses to the slack construct may have been influenced by respondent's own ethical attitudes.

In conclusion, there is limited evidence on the interaction effects of contextual variables in participation-slack studies. Dunk and Nouri (1998) provide an extensive list of such variables based on various theories such as attribution theory, cognitive theory and motivation theory. Some of the variables that have yet to be considered are task uncertainty, organisational culture, truth-inducing path schemes, role ambiguity and need for achievement.

2.4.4.3. Participation-Slack: Concluding Remarks

There is some evidence as to the existence of a negative relationship between budgetary participation and slack. On the other hand, the use of contingency arguments has revealed possible instances of positive relationships but there has not been sufficient investigation into this possibility. In particular, the influence of task uncertainty appears of significant interest in considering the impact of MCS on dysfunctional behaviour. In parallel however, there is an increasing voice in the literature that considers the consequence of slack to be universally beneficial to the organization. Recent case evidence suggests that supervising managers and organizations do allow slack to occur but only in specific circumstances (as a result of uncertainty or for directing organizational attention, as in the case of Davila and Wouters, 2005).

2.4.5. Budgetary Participation Studies: Concluding Remarks

Except for instances where budgetary participation acted as a moderator variable for budget emphasis, this section has presented a review of studies examining the consequences of budgetary participation. Several contextual variables have been found to be very relevant in influencing the relationship between budgetary participation and an outcome variable. It is also worth noting that the "budgetary participation" construct has been measured almost consistently in survey research (i.e. based on Milani's (1975) 6-item instrument)³⁷ thus preventing construct differences to impact on results - a situation which is very different to most of the other constructs being reviewed.

³⁷ In other instances, three dimensions of budget-related behaviour (BRB) were used to operationalise participative budgeting (e.g. Merchant, 1981 and 1984).

As mentioned by Shields and Shields (1998), and in spite of some inconsistencies noted in the reviewed literature, there is probably more scope at this stage to explore the antecedents of budgetary participation, particularly those relating to the concept of uncertainty. This study endeavours to include budgetary participation as one control mechanism of interest and to consider in more detail its consequences. In other words, it will consider the proposition that participation (as a control system) may induce several forms and types of dysfunctional behaviour. Furthermore, the influence of uncertainty as a contextual variable remains to be fully investigated.

2.5. Reliance on Accounting Performance Measures (RAPM)

RAPM is another key area of management accounting research, which seeks to investigate the effects of - and the factors influencing - the use of accounting data (namely budgets) for evaluating managerial performance. More formally, Harrison (1993, p. 319) considers RAPM to be:

“.....the extent to which superiors rely on, and emphasize those performance criteria which are quantified in accounting and financial terms, and which are pre-specified as budget targets”

There is no doubt as to the value of such research in an environment dominated by the need for more competitiveness and the need for organisations to pinpoint or identify drivers of (non) performance. The traditional role of accounting data in performance evaluation i.e. as an “independent and fair” scorecard system is constantly challenged. For example, the concept of Balanced Scorecard (Kaplan and Norton, 1992) explicitly condemns the exclusive use of accounting measures for evaluating a firm’s or a manager’s performance. In addition, there is a close link between this research area and that of budgetary participation. In fact, whilst Hopwood (1972) is viewed as the seminal work in the RAPM area (Otley and Pollanen, 2000, p. 483), Briers and Hirst (1990) and Hartmann (2000) consider that Argyris (1952) did already discuss and hypothesise on the likely effects (functional and dysfunctional) of RAPM. Argyris (1952) subsumed the RAPM construct within his research on supervisory styles and “*..the propensity of supervisors to emphasize the need to meet the budget (budget emphasis)*” (cited in Briers and Hirst, 1990, p. 234).

Argyris (1952; 1953) remains a research of particular importance to the current study since he lengthily debated on the dysfunctional consequences of budget emphasis on the concerned managers. For example, his comment that operational managers could not properly communicate their explanations - for their budget (non) performance - to the controllers, hence creating tension and reduced managerial effectiveness, remains even now a case in point. Furthermore, Argyris' (1952) finding that dysfunctional behaviour could indeed be provoked by the use of controls (cited from Hartmann, 2000, p. 452) is of crucial interest. His later contribution (Argyris, 1990) is however less categorical about the 'negative' consequences of 'dysfunctional behaviours'. He considers the latter to be organizational and/or individual defensive routines that arise from potential threat or embarrassment. In response, players engage into these routine to bypass the causes of the threat. Argyris (199) thus essentially argues that such routines are not so 'dysfunctional' since they indirectly communicate the managers' concerns, realisms and uncertainties to their superiors (1990, p. 505 and p. 507), particularly when these routines have become embedded (accepted and taken for granted) within the organization - hence the term 'organizational' routine. Bearing these arguments in mind, one can now consider in more detail the findings/conclusions of Hopwood (1972, 1973) and Otley (1978); two studies which are widely viewed as the formal starting points of RAPM-based studies.

2.5.1. Hopwood (1972, 1973) and Otley (1978)

Whilst there have been some prior and focused investigations on supervisory style after Argyris (1952) (e.g. Hofstede, 1968; Lowe and Shaw, 1968; Schiff and Lewin, 1968), Hopwood (1972) was the first to formally consider the technical and inherent inadequacies of accounting performance measures, namely as an incomplete reflection of managerial performance, the inclusion of non-controllable aspects of performance in the evaluation, the difficulties in mapping the economic aspects of performance, combined with an over-dependence on short-term- and outcome-based evaluation. As summarised by Hartmann (2000, p. 455), the main objective of Hopwood's study was to find out whether these inherent technical inadequacies of accounting measures caused dysfunctional behaviours or whether it was the supervisor's approach at using these accounting measures that impacted negatively on the subordinate's attitudes and behaviour.

In this context, Hopwood (1972) identified three supervisory/management styles, namely the Budget Constrained (BC), the Profit Conscious (PC) and the Non-Accounting (NA) style and based on prior observations from Argyris (1952), he hypothesised some relationships between the style adopted by the supervisor and the respective subordinate's level of JRT (job-related tension) and/or other dysfunctional consequences. In particular, Hopwood (1972, 1973) found greater JRT and dysfunctional behaviours amongst managers who were supervised by BC superiors compared to other subordinates having PC or NA supervisors. In addition, he also found a significant moderating effect for budgetary participation in situations involving only BC supervisors.

Otley (1978) sought to replicate Hopwood's (1972, 1973) study but inevitably included some new elements in his research. For example, he devised a 5-point scale for measuring supervisory style (rather than using the 3 discrete categories). In addition, Otley (1978) carried out the study amongst independent profit centre managers (compared to cost centre managers for Hopwood) on the grounds that the use of budgetary control systems were better suited for such units and that the effects on supervisory style would be best understood. Finally, Otley (1978) argued for a link between supervisory style and budgetary performance. He notably found a positive relationship for supervisory style and budgetary performance but no significant relationship was observed between supervisory style and JRT. He sought to explain the conflicting results using the contingency approach. According to Otley and Pollanen (2000, p. 483) and Hartmann and Moers (1999, p. 292), this apparent conflict stimulated a stream of work, involving primarily the introduction of a series of contingent variables to explain differences in managerial behaviour. These studies and the resulting reviews (Briers and Hirst, 1990³⁸; Hartmann, 2000) are now considered in chronological order.

2.5.2 Pre-1990 RAPM Studies

2.5.2.1. The RAPM to Tension/"Dysfunctional Behaviour"/Stress Links

Informed by the Hopwood-Otley divergences, Hirst (1981) examined theoretically the budget emphasis-dysfunctional behaviour link, with task uncertainty and job-related tension respectively as moderator and dependent variable. The author convincingly

³⁸ Briers and Hirst (1990) provide a tabulated account of 18 studies involving budget emphasis and its link to other dependent, moderator or intervening variables.

argues that the extent to which managers may engage in dysfunctional behaviour further to the different use of accounting measures will vary as task uncertainty changes (Hirst, 1981, p. 776-780). He also predicts a higher level of job-related tension and more social withdrawal when budget emphasis and task uncertainty are at their extremes (low and high).

In a later study, Hirst (1983) empirically tests his arguments and predictions. He considers job-related tension (JRT) and social withdrawal as surrogates for dysfunctional behaviour (1983, p. 597) and initially hypothesises a curvilinear relationship. Based on the responses from 111 managers, Hirst (1983) however finds a linear relationship between RAPM and the JRT dependent variable. An analysis of the relationships reveals a positive link between RAPM and JRT in a high task uncertainty situation whereas the relationship is negative in a low uncertainty situation, but with no significant results for the social withdrawal variable. Also, Hirst's (1983) results for the JRT dependent variable are not consistent with some of Otley's (1978) findings. Whilst Hirst (1983) acknowledges that the sample selection was a non-random one and that the task uncertainty variable sub-scales were poorly related, one non-stated weakness remains the measurement of dysfunctional behaviour via JRT. Later in this thesis, it will be put forward that dysfunctional behaviour may involve actions (and/or reactions) whilst JRT merely implies a state of mind, which may (or not) lead to dysfunctional behaviour.

Imoisili (1985) also examined the impact of task uncertainty (role stress was the intervening variable) on the RAPM-dysfunctional behaviour link. As reported by Briers and Hirst (1990, p. 242), the results were not significant due to the absence of low budget emphasis respondents/companies in the study to enable meaningful comparisons. A further study by Imoisili (1989) where task uncertainty and task interdependence were considered vis-à-vis RAPM and job stress also yielded non-significant results. Bottger and Hirst (1988) investigated the moderating impact of budgetary participation in instances of high budget emphasis and indeed concluded that job stress would be reduced in cases of high budget emphasis but no such beneficial influence could be observed in a low budget emphasis situation.

The role of budget-based performance measures in encouraging dysfunctional behaviour was also considered in the context of zero-based budgeting practices (ZBB),

by Hayes and Cron (1988). According to them, the introduction of ZBB practices leads to an increase in openness of the adopting department to external factors, and as a result this leads to rise in the level of task uncertainty (1988, p. 147). Drawing upon Hirst's (1981) model, they argue that the use of internal accounting measures is (or becomes) increasingly inappropriate in the sense that they fail to formally recognize the environment faced by, or the demands placed upon, the manager by other units. As a result, tensions will increase in subordinate-superior relationships and the manager will seek relief by engaging in dysfunctional behaviour (Hirst, 1981, p. 777). Although Hayes and Cron (1988) only provide anecdotal evidence and illustrations relating to ZBB practices, they provide a convincing argumentation as to the dysfunctional consequences of the combined effects of accounting-based performance measures and a high level of task uncertainty.

One specific outcome variable, which could be subsumed within the dysfunctional behaviour heading, is budgetary slack. There have been two early studies (Schiff and Lewin, 1968; Lowe and Shaw, 1968) that have considered the budget emphasis-budgetary slack link, using interviews/case study methods. Both studies document a higher level of budgetary slack in high budget-emphasis situations. Onsi (1973) and Merchant (1983) observed similar results as part of an empirical study based on structured interviews and questionnaire surveys, whilst Merchant (1985c) found only partial empirical evidence of such links. In addition, Hofstede (1968) surveyed the budgetary process in six manufacturing companies using interviews and empirical analysis. Budget emphasis was one of the three dimensions of supervisory style³⁹ and he observed dysfunctional consequences (in terms of absenteeism and interpersonal conflicts) as a result of a higher budget emphasis.

From the above-mentioned studies, one can conclude there is a *prima-facie* evidence of a positive relationship between RAPM and dysfunctional behaviour, although the main area of contention remains whether the previous studies actually measured dysfunctional behaviour or another un-related variable (principally JRT) and whether task uncertainty plays any role in this relationship. It is clearly a valid argument to hypothesise that JRT or tension can lead to dysfunctional behaviour. For example, the notion of invalid data reporting (IDR) from earlier studies (e.g. Hopwood, 1973; Otley,

³⁹ The other two being frequency of contacts regarding budget results and extent of focus on negative results (cited from Briers and Hirst, 1990, p. 236)

1978; Hayes and Cron, 1988) has not been picked up in more contemporary studies⁴⁰ and the focus had gradually moved to budgetary slack (considered here as a specific sub-element of dysfunctional behaviour) and more positively-oriented outcome variables (such as managerial performance or job satisfaction). The latter approach is possibly related to the rise of Otley's (1978) contingency "fit" paradigm which started to dominate RAPM studies in the early 1980s. Finally, the significant impact of task uncertainty is noted, although the initial task uncertainty measurements included environmental uncertainty as well (for example, Hirst, 1983 but not Imoisili, 1989).

However, in parallel, the above does not preclude the implication that budget emphasis or RAPM) does have a functional (beneficial) use for the organization. The initial evidence that focuses on the RAPM-Performance relationship is presented in the next section but more contemporary studies that re-examine and present alternative findings (on the positive impact of RAPM) are discussed afterwards.

2.5.2.2 The Contingency-led RAPM-Performance Studies (Pre-1990)

Consistent with Otley's (1980) "minimum necessary contingency framework" and as explained by Fisher (1995, p. 32), "*...the contingent control literature is based on the premise that a correct match between contingent factors and a firm's control package will result in desired outcomes (i.e. higher performance)*", various RAPM studies have explored the link between budget emphasis and performance.

Merchant (1981) researched on RAPM, budgetary participation and departmental performance amongst 170 managers (19 firms). Whilst he could not detect any significant link between budget-emphasis and departmental performance for the whole sample, he found positive (negative) effects for large (small) firms, therefore suggestive of a relationship contingent upon size. This was later confirmed by a follow-on study (Merchant, 1984).

Brownell (1982a) used budgetary participation as a moderator variable for a sample of 48 managers. He proposed that a high RAPM level would lead to better performance (job satisfaction and job performance) only if the managers were participating in the

⁴⁰ One notable exception to this situation is Merchant (1990). This study - reviewed in a later section - investigated a dependent variable known as "accrual manipulation".

budget. The results did confirm this hypothesis for the performance variable but not for job satisfaction. However, a later study by Brownell and Hirst (1986) claimed that the above-mentioned results are more likely to hold only in cases where task uncertainty is low (Brownell and Hirst, 1986, p. 242). They conclude that in a low task uncertainty situation, the appropriate matching of budget emphasis – budget participation (i.e. high/high or low/low) generates lower JRT compared to a non-matching situation (i.e. high/low or low/high). As expected, such differences do not hold in a high task uncertainty situation.

The inability to secure a statistically significant budget emphasis-performance link, as moderated by budgetary participation, was viewed as perplexing (Brownell and Hirst, 1986, p. 249). Hirst (1987) sought to evaluate it further but was still unable to support Brownell's (1982a) original expectations. In fact, a later study by Dunk (1989) found significant opposite results i.e. high (low) budgetary participation together with high (low) budgetary emphasis reduces performance (cited from Briers and Hirst, 1990, p. 242). Hence, after a first decade of contingency research, the findings from RAPM-performance studies as moderated by budgetary participation remained equivocal.

A second and very commonly used contingent variable in management control studies is environmental uncertainty (EU). Govindarajan (1984) sought to test for the validity of EU on the premise that RAPM would be more (less) suitable for low (high) environmental uncertainty conditions. Based on a survey of 58 business unit managers, the analysis showed a negative correlation between environmental uncertainty and RAPM, with higher negative correlations for more effective business units. On the other hand, Merchant (1984) did not find any evidence to support the hypothesis that RAPM was more appropriate for companies having products later in their life cycle or products with higher market share. However, later studies by Brownell (1985 and 1987), who also investigated EU as a moderator for RAPM-job performance links, found conclusive evidence that a lower budget emphasis would be beneficial on performance and satisfaction in high EU situations.

The strategic orientations selected by the companies have been also of interest to RAPM researchers. In a way, the use of strategy variables can be viewed as a logical step from the analysis of EU variables. According to Govindarajan and Gupta (1985), RAPM would be less appropriate for businesses following a build strategy than for

those adopting a harvest strategy⁴¹. In fact, RAPM appeared to be equally effective for both strategies for a sample of 20 profit centres, although a long-term based performance criterion was found to be positively correlated to performance in firms adopting a build strategy (Govindarajan and Gupta, 1985, p. 63). However, Gupta (1987) confirmed that Govindarajan and Gupta's (1985) initial hypothesis. Govindarajan (1988) also investigated the budget emphasis relevance using a different typology, i.e. 'low-cost' versus 'differentiation' strategies. Based on a sample of 75 managers from 24 large companies, Govindarajan (1988) found that objective measures (RAPM) were used by 'low-cost' companies. Simons (1987a), using a different typology (defenders vs. prospectors⁴²) and a sample of 76 managers, found similar evidence of RAPM being more important for defenders than for prospectors. The general conclusion from these initial studies involving RAPM and strategy is one of consistent findings – as mentioned by Langfield-Smith (1997, p. 218) – whereby performance measures based on objective accounting measures tend to be aligned more with companies having adopted a defender / low cost / build type of strategy. Although the studies have used different typologies, there are some clear common denominators in these strategic orientations (cost control, reaping the benefits and cash flow of current markets, etc). This alignment may also indicate to some extent that accounting and control systems have been considered in the strategy implementation process and adapted accordingly, although the timing of such implementation or changes have never been implied or researched by the various studies.

Task uncertainty is another contingent variable which has been researched in RAPM studies. Although there has not been strictly a significant number of studies involving task uncertainty in the 1980s, other contingent variables have been used to proxy for some of the elements of the task uncertainty construct, such as functional differentiation (e.g. Brownell, 1985; Hirst and Yetton, 1984) and production technology (e.g. Merchant, 1984). For example, Merchant (1984) found that to some extent, RAPM was more appropriate for routine and repetitive technology departments or companies. Hirst and Yetton (1984) demonstrated some stronger relationship between role ambiguity and

⁴¹ A build strategy involves improving a market share and competitive position, even though this may decrease short-term earnings or cash flow. A harvest strategy would imply favouring the latter aspects rather than increasing market share (Langfield-Smith, 1997, p. 212).

⁴² Defenders operate in a relatively stable product area, offer more limited products than competitors, and compete through cost leadership, quality and service. They engage in little product/market development. Prospectors, on the other hand, compete through new products and market development. Product lines change over time and this type of firm is constantly seeking new market opportunities (Simons, 1987a, p. 359)

budget emphasis for production jobs compared to non-production duties. On the other hand, Brownell (1985) examined the differences between marketing and R&D managers. Although he had expected that RAPM would be more appropriate for marketing managers (and as supported by interviews, Brownell, 1985, p. 510), the interaction term coefficient was not statistically significant. The relatively lower number of responses from R&D managers compared to the marketing managers could have influenced the results.

Again, the impact of task uncertainty was not significant in the study by Imoisili (1989), which was expected to moderate RAPM to various outcome variables i.e. job stress, performance and attitudes to budget. In trying to reconcile his findings to those of Otley and Hopwood, he suggested two possible explanations (1989, p. 332-333), namely the financial condition of the targeted companies/organisations (already raised by Otley, 1978) and reward uncertainties. Indeed, for a company facing financial difficulties, the reliance on accounting measures for performance evaluation is expected to decrease as managers would be evaluated by multiple criteria (and/more flexible ones; Imoisili, 1989, p. 332). The second plausible explanation would be that subordinate managers lack information and have uncertainties on how their supervisors are assessing their performance. In fact, Imoisili (1989, p. 333) did correlate the managers' perception of their evaluation criteria (21 items) and the actual criteria used by the supervisors, and found little correlation between 11 of the items. Nonetheless, task uncertainty remains to be confirmed as a valid RAPM-based contingent variable.

Essentially, the pre-1990 RAPM studies had started as a result of "seemingly conflicting" results (Hopwood, 1972 vs. Otley, 1978) on the impact of accounting measures on performance evaluation. Whilst some studies (for example, Hirst, 1981; 1983; Imoisili, 1989) made specific reference and/or sought to link their research to the Hopwood/Otley "debate", a separate strand of studies has developed independently and has focused on potential contingent variables such as environmental uncertainty, strategy, budgetary participation, and task uncertainty. As stated by Briers and Hirst (1990, p. 253), this research focus has perhaps encouraged more empirical and statistically led-analysis at the expense of theory development.

In addition, the use of job performance as a dependent variable for RAPM is put into question. Brownell (1982) pointed out that budget emphasis may be in fact a function of

job performance (cited in Briers and Hirst, 1990, p. 254). Hence, this is indirect support for this study's proposed focus on dysfunctional behaviour as a more relevant dependent variable. However, the key element suggested by Briers and Hirst (1990, p. 256) is the need to understand the process by which supervisory styles affect behaviour and the process by which the supervisory styles emerge.

2.5.3. Post 1990 RAPM studies

As already indicated in the previous section, a second strand of RAPM studies has focused on researching new potential significant contingent variables and using increasingly more sophisticated statistical techniques. Over the recent period, there has been a consistent stream of empirical papers, with no less than four review papers on RAPM (all published in 2000⁴³). These reviews have sought to examine the body of evidence from different perspectives in a bid to develop a long sought RAPM theory and to seek generalisations from the last 20 years of research. The relevant findings and issues are now presented:

2.5.3.1. Post 1990s RAPM Studies

The starting point of Hartmann's review paper relates to statements claiming that RAPM studies have reached an organised critical mass of empirical work (Brownell and Dunk, 1991). On the other hand, authors such as Briers and Hirst (1990) and, to some extent Chapman (1997), are more critical of such a claim. Hartmann (2000) then reviews 15 RAPM studies published in or after 1990 to consider whether there is evidence of such an organized critical mass and to suggest developments to RAPM theory.

Firstly, on the issue of direct links between RAPM and some forms of dysfunctional behaviour, Hughes and Kwon (1990) and Lal et al. (1996) have found positive relationships between RAPM and budgetary slack, therefore confirming earlier results. Furthermore, there were further studies who considered this linkage in combination with one or more contingent variables (which will be elaborated subsequently) but the dependent variables used have been either budgetary slack or job-related tension (JRT).

⁴³ Hartmann (2000), Otley and Pollanen (2000), Otley and Fakiolas (2000), Vagneur and Peiperl (2000)

The first update on the impact of contingent variables relates to environmental uncertainty (EU). Although the initial general conclusion drawn out that RAPM was less effective in high EU situations, there was some partial evidence of high EU-high RAPM links from a cross-sectional study of 81 managers (Ezzamel, 1990). On the other hand, in a study involving 215 managers in 18 companies, Ross (1995) did not find a significant impact for EU on the RAPM-JRT link. The absence of consistent results could be related to the different measures of environmental uncertainty, which sometimes included some elements of task uncertainty⁴⁴. In a review of the use of the perceived environmental uncertainty (PEU) construct in accounting research, Tymon et al. (1998, p. 27) convincingly argue that task uncertainty is a very different concept from that of environmental uncertainty. They also consider PEU to be a strategic construct (1998, p. 28) and a measure of top management's perceptions at the level of uncertainty regarding the external environment. Hence, any attempt at measuring EU from a middle or lower management level may be inappropriate and invalid.

As for the use of strategy as a contingent variable, two further studies are considered, namely Merchant (1990) and Chenhall and Langfield-Smith (1998). In a study using "long range orientation" and "discouragement of new ideas" as dependent variables and a sample of 54 profit centre managers, Merchant (1990) did not find support for the hypothesis that RAPM was more appropriate for growth rather than maintain/harvest strategies. Although their study was not included in the Hartmann (2000) review, Chenhall and Langfield Smith (1998, p. 263) investigated RAPM as one of the components of "traditional accounting techniques" under particular strategic priorities (using Porter's Model, 1980). Using cluster analysis to classify 78 organisations in their respective strategic priorities, Chenhall and Langfield Smith (1998, p. 256) found that all traditional accounting techniques (inclusive of RAPM) were deemed beneficial for almost all companies (whether they were applying a low cost or differentiation strategy) although the authors had expected such techniques to be beneficial only for companies adopting low price strategies. Hence, despite some earlier consistent findings, Hartmann (2000) and Langfield-Smith (1997) thus acknowledge that the more recent results are not conclusive and much remains to be done as to the nature and effectiveness of performance evaluation systems under different strategies.

⁴⁴ All RAPM studies involving EU have measured EU using Govindarajan's (1984) items - which were themselves adapted from Khandwalla (1972).

Williams et al. (1990), in a study of 201 managers from 22 firms, investigated the impact of pooled vs. reciprocal task interdependence⁴⁵ for a host of budget-related variables (including budget emphasis) and their links to departmental performance. In effect, the impact of low (i.e. pooled interdependence) vs. high (i.e. reciprocal interdependence) uncertainty was again considered but there were no significant differences in the budget emphasis-performance relationship under these two conditions. A similar study (not reviewed in Hartmann, 2000), by Kaplan and Mackey (1992), looked at the influence of the adopted production process on the use of accounting measures. Instead of using the pooled vs. reciprocal dichotomy, the authors categorised production processes as either “job shop” or “flow shop”, and interpreted them as being respectively low task and high task uncertainty situations (1992, p. 117). Although this study did not strictly apply the contingency fit method (no outcome variable such as performance or satisfaction), the findings from a sample of 47 firms (plant managers and plant controllers) showed that “organizations using a flow manufacturing process exhibited a significantly greater tendency to rely on accounting numbers for evaluation purposes” (1992, p. 119). Dunk (1992) also considered the relevance of manufacturing process automation in moderating the link between reliance on budgetary control (budget emphasis) and departmental performance. He found similar results to Kaplan and Mackey (1992) in that as manufacturing processes become more automated (hence, lower task uncertainty), the reliance of accounting measures would be more beneficial to the organization when assessing departmental performance. However, Dunk’s (1992) findings are based on a relatively low usable sample size (24) and are thus open to criticisms.

Finally, Abernethy and Brownell (1997) also examined the task characteristics within a sample of 127 research and development (R&D) managers and found partial support for the hypothesis that RAPM was more appropriate in cases of lower task analyzability and fewer exceptions. The results presented above clearly show an increased interest and relevance of task characteristics in RAPM studies. However, task characteristics and to a lesser extent, RAPM have not been measured consistently and this resulted in conflicting or non significant results. Nevertheless, task characteristics, and more specifically task uncertainty, remain an important contingent variable in RAPM and this

⁴⁵ As explained by Williams (1990, p. 223), “the prime function of departments featuring pooled interdependence is that, while they share common resources with other departments, little work flows amongst departments.....”. On the other hand reciprocal interdependence implies a “mutual exchange of inputs and outputs amongst the various organizational components” (1990, p. 224)

is in fact viewed as the starting point for RAPM theoretical developments, as convincingly argued by Hartmann (2000, p. 470-471).

One other set of factors in the RAPM literature relates to the relationships between the supervisor and the supervisee. Incidentally, the term “Reliance on Accounting for Performance Measurement” (RAPM) is measured by the supervisee’s *perception* of the supervisors’ reliance on accounting measures for his/her performance evaluation purposes. Hence, this would mean that this extensive area of research is significantly based on the supervisees’ perceptions and the state of the (perceived or otherwise) relationship between the supervisor and supervisee would certainly be of utmost relevance. In this respect, Ross (1994) investigates the influence of trust in a RAPM-JRT study. The author (1994, p. 630) argues that any system of performance evaluation is bound to cause increased levels of stress, anxiety and job-related tension, and suggests that trust could be an important factor in reducing such negative effects. Based on a sample of 215 managers, Ross (1994, p. 633) found that in situations of high levels of trust, JRT is lower when budget-constrained or profit-conscious evaluation styles are used. On the other hand, in cases of low levels of trust, changes in performance evaluation style will not decrease JRT.

In a similar vein, Merchant (1990) sought to link the leadership styles and RAPM. Although early studies by Hopwood seemed to argue that RAPM is appropriate for more considerate and less initiating structure leaders, Merchant (1990) did not find empirical support for this hypothesis. So far, there have not been any more studies that have tried to clarify the effect of leadership style in RAPM effectiveness. However, there has been some interest on the impact of the supervisors’ own performance evaluation method on his/her evaluation of subordinates. Poe and Strawser (1991) refer to the concept of “contagion effect”⁴⁶ and operationalised it as a contingent variable. But in a study of 77 managers from 25 firms, the authors did not find a strong contagion effect i.e. the managers did not use the same evaluative styles as the one they perceived to be used by their own superiors. However, in a later study by Barret et al (1992) and involving 72 marketing managers, the contagion effect was found to be very strong and significant. As mentioned earlier, the use and effectiveness of RAPM is intuitively

⁴⁶ “The contagion effect posits that as a manager recognizes the evaluative style employed by his superiors, he/she will adopt the same or at least a compatible evaluative style in evaluating his subordinates” (Poe and Strawser, 1991, p. 171).

linked to the degree of relationship existing between the appraiser and the appraisee. The above studies have sought to examine the relevance (and existence) of this relationship via several contingent variables but their relevance remain to be confirmed.

A final, but yet unclassifiable contingent variable that has been increasingly investigated in the RAPM literature is national culture. As in other areas of accounting research⁴⁷, the national culture variable has emerged to explain differences and similarities in the application and usefulness of management accounting practices in “non-western” countries (Harrison, 1992; Harrison and Mckinnon, 1999). It is worth noting that a very significant majority of the “mainstream” empirical studies in RAPM were based on data collected in Australia (e.g. Brownell and Dunk, 1991; Brownell and Hirst, 1986; Ross, 1994, 1995), United States (e.g. Hopwood, 1972; Govindarajan, 1984), Canada (e.g. Kaplan and Mackey, 1992; Williams et al, 1990), and United Kingdom (e.g. Otley, 1978; Dunk, 1992). Nevertheless, differences and similarities in findings from these various studies were rarely explained by cultural differences but rather by other contextual factors.

There are various reasons for this interest in national culture but one may argue that the increasing importance and influence of multinational companies in non-western countries and the development of a research- and empirically-friendly measurement of national culture (namely Hofstede’s (1980) cultural dimensions and scores) have been (and are still) important motivators. However, the findings have never been consistently conclusive and cultural scores do change over time. For example, in a study of Singaporean and Australian functional managers, Lau et al. (1997, p. 189) did not find any significant coefficient for cultural variables (individualism and power distance) or interaction terms involving a cultural variable. In contrast to the review of national culture in budgetary participation studies (Section 2.4.2.7), the impact of national culture on RAPM appropriateness is less evident (Hartmann, 2000, p. 463) and this seems to indicate a higher level of generalization of RAPM practices (interacting with some typical variables such as task difficulty, task uncertainty, budgetary participation) irrespective of the different cultural contexts. However, there could be more critical explanations of such results.

⁴⁷ For example, refer to Chanchani and MacGregor (1999).

Firstly, the RAPM studies have focused on only two cultural dimensions (power distance and individualism) and as mentioned by Lau et al. (1997, p. 192), dimensions such as uncertainty avoidance (and even Masculinity vs. Femininity) or Confucian dynamism could be more relevant to RAPM. Secondly, one may altogether question the use of the Hofstede's (1980) cultural dimensions and scores to explain for national differences (or similarities) in management accounting practices. It could be argued that national differences do exist but these may not be apparent when using Hofstede's scores. Indeed, a recent review article by Baskerville (2003) challenges the use of cultural dimensions and the fact that they seem to be related to various national data indices such as GNP, economic growth, population size and density, levels of education, social mobility etc (2003, p. 9).

One final category of RAPM studies involves research where RAPM was clearly hypothesised as a contingent variable rather than being an independent variable. Dunk (1990, 1993a) are examples of such research. Dunk (1990) considered the interactive effect of budgetary participation and budget emphasis on managerial performance. Based on a sample of 26 managers in northern United Kingdom, Dunk (1990, p. 176) concludes that performance is lower when participation is high (low) and budget emphasis is high (low). A later study (Dunk, 1993a) investigated budget emphasis and information asymmetry on the relation between budgetary participation and slack. This research is notable in that it included an agency theory-related variable in the management control contingency literature. Using the responses from 79 Australian managers⁴⁸, Dunk (1993a, p. 406) found that slack was lowest (highest) when all independent variables were high (low). This was contrary to expectations, prompting the author to acknowledge possible measurement issues for two newly-measured variables, namely slack and information asymmetry. Oddly enough, there have not been subsequent attempts at investigating the impact of information asymmetry in RAPM, especially when one considers the results reported by Dunk (1993a).

2.5.4. RAPM: A Further Review and Evaluation of Findings

In contrast to Briers and Hirst's (1990) earlier criticisms that RAPM studies do not give enough attention to replication and confirmation, it is noted that the post-1990 studies

⁴⁸ A further 40 managers responded to a second survey, aimed at ensuring the reliability of the instruments for budgetary slack and information asymmetry (Dunk, 1993, p. 404).

have sought to be generally more coherent in their approaches and selection of contingent variables. Nevertheless, as mentioned by Hartmann (2000, p. 465), there is a relatively large number of hypotheses not supported and replication studies failed in some instances in confirming earlier results. There was still a “duplicative” use of contingent variables, principally for task uncertainty which was measured in various forms (e.g. level of process automation in Dunk, 1992 or task interdependence in Williams et al., 1990). In addition, “newer” variables were considered such as trust and national culture and there were an increasing number of studies applying multiple interactions models (more than two-way interactions).

In acknowledging Hartmann’s (2000) comments on the lack of successful replications, Otley and Pollanen (2000) attempted to re-test some key hypothesis of five often quoted studies, namely Brownell (1982), Brownell and Hirst (1986), Dunk (1989), Brownell and Dunk (1991) and Harrison (1992) in one single context i.e. managers and administrators of Canadian universities. The results of these replications and the original results are tabulated in Appendix 2.4. Clearly, the levels of explanatory power (as measured by R^2) were different and the significance and sign of the interaction terms were at odds, except for Brownell and Dunk (1991). According to Otley and Pollanen (2000, p. 494), this level of contradictory results is not so surprising given that there has generally a preference for new measures and different samples rather than strict replication. Hence, even if the surveyed studies had similar hypotheses (and variables) being tested (refer to Appendix 2.4), the variables were measured differently and the respondents were from very different backgrounds prompting Otley and Pollanen (2000, p. 494) to state that *“to expect consistency over such a diverse range of managers over a 20 year period is clearly optimistic”*. Despite that Otley and Pollanen (2000) review a relatively limited number of RAPM studies, they nevertheless drive home a very important point: the inherent nature of RAPM (and other MCS) studies and the mainstream contingency paradigm seems to preclude any chance of a coherent body of knowledge and understanding or at the very least, there needs to be stricter replication, especially in terms of variable measurement, to reach higher standards of consistency.

As stated above, the definition and measurement of variables, specifically RAPM, has been identified by Hartmann (2000, p. 466) as an important issue. Surprisingly, Briers and Hirst (1990) did not pinpoint this particular problem although there were already

different versions of RAPM measures being used⁴⁹. Otley and Fakiolas (2000) and Vagneur and Peiperl (2000) sought to explain these different measures and their implications for future RAPM research, and this is detailed in Chapter 5 (Section 5.2.3).

Hartmann (2000, p. 466) argued that this variety of RAPM measurement has not only methodological implications but also theoretical ones as the researchers are implicitly reviewing the definition of this control mechanism, presumably in response to their particular research objectives and context (i.e. country, category of respondents, hypothesis and contingent variable being tested etc⁵⁰). Clearly the differences in understanding and applying RAPM as a variable of interest have been more important than compared to “stricter” MCS constructs such as budgetary participation and standard operating procedures. Hartmann (2000, p. 466) provides some examples of such differences in understanding and application, namely

- (a) RAPM represents targets expressed in accounting numbers (quantitative and financial target) – e.g. refer to Harrison, 1993
- (b) RAPM represents rigid, formal and objective measures of performance (e.g. refer to Chapman, 1997)
- (c) RAPM refers to the use of budgets, hence the term budget emphasis, (e.g. Fisher, 1995).

Otley and Fakiolas (2000, p. 507) concurred with the above-mentioned definition and measurement issues, and suggested a more thorough development of RAPM measures adapted to the organizations under study. However, a more critical and elusive problem remains the development of a RAPM theory.

2.5.5. Developing a RAPM Theory and Areas of Investigation

One issue which is raised by both Briers and Hirst (1990) and Hartmann (2000) is the absence of a strong theoretical underpinning for RAPM. For example, Briers and Hirst (1990, p. 256) state:

“In summary, recent theoretical developments in supervisory literature have centred on the introduction of several moderator and antecedent variables.

⁴⁹ Hartmann (2000, p. 466) reports as many as three different RAPM measures as early as from 1980. This was most probably associated with the increasing adopting of more sophisticated statistical and factor analysis techniques and the need to contextualise the questions to the target audience.

⁵⁰ Otley and Fakiolas (2000, p. 506) report that earlier studies tended to choose between the Hopwood and Otley variants depending upon whether they were to be used in a cost or profit centre environment.

These developments add breath to the literature.....[but]....the depth of understanding has progressed little since the early studies”

Ten years later, Hartmann (2000, p. 467) offers a more nuanced explanation in that RAPM studies have typically depended on one theoretical strand, namely role theory. According to him, the emphasis on role theory has led to a greater interest on the negative effects of RAPM, principally using JRT as a dependent variable. Nevertheless, it must be pointed that a significant number of studies both consider JRT and some positively oriented outcome variable (e.g. job satisfaction, managerial performance), with some measure of success for both categories of outcome variables. However, Hartmann (2000, p. 468) argues that a link between RAPM and a positive outcome variable is theoretically unsound, when one considers role theory and the difficulties in linking empirically job attitudes (e.g. JRT) to managerial performance.

The above-mentioned issue is further compounded by the widespread use of the contingency paradigm in RAPM studies. Hartmann (2000) contends that the contingency paradigm has turned into a “pragmatic motive” to study the relationship between RAPM and any contextual variable: a criticism which was already made by Chapman (1997) in the wider management accounting context.

This leads to Hartmann’s (2000) theoretical proposals in using uncertainty as a central concept in the RAPM contingency framework, based on Chapman’s (1997) earlier suggestions and using Galbraith’s (1973, 1977) notion of uncertainty. The previous section has already presented the various RAPM studies that have investigated the influence of uncertainty, although there have been very different ways of operationalizing uncertainty i.e. from a measure of uncertainty including both environmental and task uncertainty (e.g. Govindarajan, 1984), then a focus on task uncertainty (from an internal perspective), such as Brownell and Hirst (1986) and Imoisili (1989), and on variables which were closely associated to task uncertainty, i.e. functional differentiation (Brownell, 1985) and manufacturing process automation (Dunk, 1992). Finally a more contemporary approach has been to further dissect task uncertainty into two sub-components referred to as task variability and task difficulty⁵¹ on the grounds that they “...are two independent dimensions, each with differing theoretical consequences” (Brownell and Dunk, 1991, p. 694) and that quite low

⁵¹ Whitley et al. (1983) refer to “number of exceptions” and “analyzability” to mean task variability and task difficulty. These terms have been used interchangeably in more recent studies.

correlations have been observed between these two dimensions. Task difficulty has been of particular interest in subsequent studies, such as Lau et al. (1995, 1997) and Lau and Buckland (2000). However, the results have yet to provide a clear answer as to whether task uncertainty (and its sub-dimensions) has a negative or positive effect on RAPM. This is referred to by Hartmann (2000, p. 472) as the “uncertainty paradox”. In an attempt to resolve this so-called paradox, Hartmann (2000, p. 473-476), proposed areas of investigation involving RAPM and uncertainty namely:

- (a) The different roles of RAPM and the impact of uncertainty in the change in roles. This was already picked up by Simons (1995) in terms of how controls (including RAPM) are being used in either a “diagnostic” or “interactive” mode. Abernethy and Brownell (1999) is one study which investigated the style of budget use (interactive or diagnostic mode) in influencing the link between strategic change and performance. This has provided the motivation for further investigating the diagnostic vs. interactive dichotomy in this study, but within a mediating model. This has also been the subject of recent studies (e.g. Henri, 2006).
- (b) Applying theories other than role theory, especially in cases where RAPM is linked to positive outcome variables, such as goal theory (Kren and Liao, 1988, p. 289) or equity theory (Landy, 1989). However, given that the current study will focus on negative consequences of control systems/mechanisms, role theory will remain the primary foundation for investigating RAPM.
- (c) More detailed research on the so-called “contagion effect”, in conditions of uncertainty. Although it was mentioned earlier than the superior’s own performance evaluation criteria may be an important variable, this study will not focus on this particular issue.
- (d) More detailed research on the different definitions and types of uncertainty (environmental and task) that can influence RAPM. In line with earlier comments made by Tymon et al (1998) and given that this study will focus on functional managers, it would be more appropriate to focus on task uncertainty and its two resulting sub-dimensions (task difficulty and task variability). In fact, Hartmann (2005) later found that environmental uncertainty and task uncertainty have opposite effects on managers’ opinion about the appropriateness of accounting performance

measures, and thereby concluded that these findings provide an explanation of the mixed findings in the RAPM-uncertainty literature (2005, p. 258).

2.5.5.1 The ‘Positive-influences’ of RAPM and Budget-Based Measures

In parallel to the research direction taken above, it has to be acknowledged that a number of recent studies have addressed the RAPM theory debate from an alternative perspective namely that the use of budget emphasis can have positive consequences. For instance, Marginson and Ogden (2005) argue that the path-goal theory would predict that managers who do not have self-evident paths and clear cut goals will welcome accounting based controls such as budgets for the structure and certainty they provide (2005, p. 436). The key aspect on which the authors and other studies rely on is the level of ambiguity that managers may be facing in their activities. They refer to a study by Storey et al. (1997) which found that managers accepted the tight budgetary targets because the latter reflected a strong image of certainty. As a result of Storey et al.’s (1997) findings, Marginson and Ogden (2005) implied that there was little evidence of dysfunctional behaviour emerging from a context dominated by a high level of RAPM. Based on their own qualitative and quantitative study in a number of business units of a major UK corporation, Marginson and Ogden (2005) observe that those managers experiencing high levels of role ambiguity are more likely to commit to meeting the budget targets as opposed to those with low levels of role ambiguity. In addition, the results indicate that the ‘strength’ of the role ambiguity variable is such that it can override traditional explanatory variables such as leadership style (2005, p. 450). The authors thus see the budgeting targets as a coping mechanism for managers, particularly those who are experiencing role ambiguity. They suggest that the *mere visibility* of budgetary performance is sufficient to ensure commitment, even without necessarily relying on formal incentives (2005, p. 451).

The ‘influence’ of ambiguity is also investigated in Hartmann (2005), where he considers the tolerance for ambiguity variable (TFA) and its impact on managers’ perceptions of accounting performance measures (APM). He asserts that individuals with low levels of TFA would have a greater preference for accounting performance measures. Furthermore, the relationship between task uncertainty and the appropriateness of performance measures was expected to be more strongly negative for managers experiencing a low TFA as opposed to those managers with a high TFA.

Based on valid responses from 196 managers, Hartmann (2005) did not find a direct effect of the TFA variable on the appropriateness of APM but he observes a moderating effect for TFA on the relationship between the uncertainty variables (task and environmental) and the appropriateness of APM (2005, p. 258).

Overall, the two studies highlight the possibility that RAPM / budget emphasis does have positive effects, particularly in terms of reducing ambiguity and increasing commitment. Empirically speaking, the findings of Marginson and Ogden (2005) and Hartmann (2005) on the links between ambiguity and RAPM (as a coping mechanism) are not totally consistent but this may well be due to their different measures and methodologies. However, whilst there is a clear motivation and interest for managers with high role ambiguity (or with low TFA) to seek solace from more defined budget-based measures there is more difficulty in appreciating whether managers with low role ambiguity (or high TFA) will demand less budget-based measures. Nevertheless, the authors strongly make the case that RAPM and other budget-based measures can have positive consequences. In particular, Marginson and Ogden (2005) seem to suggest that the intrinsic features of budgets (structured and certain) may lead to positive consequences

2.5.7. RAPM: Concluding Remarks

This section has extensively considered the various strands of RAPM research. In contrast to a more “settled” body of knowledge and evidence for standard operating procedures and budgetary participation, there are clearly more controversial reviews and criticisms for RAPM studies. As stated by Otley (1999) and Hartmann (2000, p. 477), this may be related to the potential contributions these may have in the performance measurement and evaluation areas (e.g. balanced scorecards). The multiple and diverging influences ‘uncertainty’ (e.g. Hartmann, 2005) remain of interest. This study will thus focus on RAPM, dysfunctional behaviour and selected contingent variables, partially in light of the areas of future research proposed by Hartmann (2000), as detailed above and in attempt to seek more consistent and theory-driven findings. The role and implications of ‘uncertainty’ need to be further considered, as a means to address the paradox previously identified by Hartmann (2000) and by his recent findings (Hartmann, 2005). Furthermore, Henri’s (2006) study on the interactive and diagnostic use of performance management systems highlights the emerging research

interest in the manner in which control systems (RAPM) are operated by senior managers. Thus, on more general terms, the implications and effects of using accounting numbers for performance evaluation remain of critical importance as they feed into reward/appraisal mechanisms being used in companies and at different levels of management.

2.6. The Relevance of Task Uncertainty and Superiors' Use of Controls

Further to this extensive review of SOP, BP and RAPM studies, the case will be made for the selection of existing contingent variables, namely task uncertainty and the superiors' use of controls (interactive vs. diagnostic). Apart from the fact that these have never been considered in a MCS-dysfunctional behaviour study and given that the superiors' use of controls has been scantily considered, it will be also argued that the selection of these contingent variables will contribute towards developing a more theoretically-driven approach to MCS studies.

2.6.1. Task Uncertainty

Chapman (1997) and Hartmann (2000; 2005) are the main proponents of considering uncertainty as a key concept in developing contingency research in management accounting. As detailed earlier in this chapter, Chapman (1997) develops his arguments from Galbraith's (1973) earlier notion of uncertainty, namely the existence of an information gap (cf. Chapman, 1997, p. 200) in relation to a particular task and a particular organisation. He further classified uncertainty in terms of "uncertainty over the consequences of action" and "uncertainty over the objectives for action"⁵². Chapman (1997, p. 202) further states that when uncertainty increases, the process of quantification in the more rapidly changing situation will be harder and despite more efforts being expected from the managers, the end results are less perfect. Hence, the uncertainty element is amenable to change significantly the perspective that managers may have on control systems.

Although Hartmann's (2000) review paper and arguments relate primarily to RAPM, these can be undoubtedly linked to other control systems/mechanisms. After reviewing

⁵² This was the basis for Hopwood's (1980) definitions of the roles of accounting in an organization, namely answer machines, ammunition machines, learning machines and rationalisation machines.

the various RAPM studies that have focused on the impact of some uncertainty or uncertainty-related variables, Hartmann (2000, p. 471) states:

“In RAPM hypotheses, uncertainty is typically predicted to affect subordinates’ perceptions of such factors as the controllability, completeness and relevance of RAPM.....Uncertainty causes predictions to be difficult and thus hinders budgetary targets”

Clearly, these comments can be equally applicable to the other control systems/mechanisms in this study (SOP and BP). As mentioned later by Hartmann (2000), the controllability aspect of any control system is a central element of any responsibility accounting system. The rules of this management tool are clear – more authority and power translates in broader responsibility for action or inactions. Hence, the level of uncertainty (whether perceived, internal or external) are bound to affect system, hence leading to dysfunctional consequences.

However, the past empirical results (particularly for RAPM and BP) involving uncertainty have not been consistent i.e. uncertainty has been observed to have positive and negative impacts on the control systems. Hartmann (2000, p. 472-473) has sought to explain this uncertainty paradox, which is rooted in the controllability principle and the implications of being in charge of a responsibility centre. Hence, whilst the responsibility accounting concept states that a manager is not to be made responsible for uncontrollable variances (especially occurring in a high uncertainty situation), most organisations still abide by this system despite its limited usefulness in an uncertain and complex environment. This leads Hartmann (2000) to believe that the conflicting results may be due to the apparent limited practical applicability of MCS, despite these having some strong theoretical (at least logical) usefulness. In consequence, he suggests various areas of improvement and one involves understanding the appropriateness of RAPM in different kinds of uncertainty. In particular, and as a starting point, the author suggests that advances can be made by giving theoretical meanings to differences between environmental uncertainty (EU) and task uncertainty (TU). Hartmann (2005) subsequently finds opposite effects of uncertainty on the appropriateness of accounting performance measures (APM), in that environmental uncertainty is positive related to APM whilst task uncertainty is negative related to APM (2005, p. 255).

In his review of contextual variables and MCS, Chenhall (2003, p. 137-141) implicitly differentiates between environmental and task uncertainty, whilst this had not been the

case for Hartmann (2000). He subsumes EU within “the external environment” and he considers that uncertainty “..defines situations in which probabilities cannot be attached and even the elements of the environment may not be predictable” (2003, p. 137). Hence, Chenhall (2003) resolutely links EU as part of the external environment⁵³ (markets, suppliers, competition) and concurs with Tymon’s et al (1998) view that EU is a top management perception. On the other hand, Chenhall (2003, p. 139) categorises task uncertainty within the generic contingency concept of technology⁵⁴ along with other aspects, namely complexity and interdependence. More precisely, the production process and the types of products (services) offered are viewed as important factors. For example, if the company primarily⁵⁵ produces non-standard and differentiated (custom-made) products, then this will translate into lower task analysability and a high number of exceptions to be managed within and across departments. On the other hand, a company engaged primarily in a mass production of undifferentiated products involves highly analysable processes and few exceptions, in some way benefiting from a sort of “organizational learning curve”⁵⁶. As stated by Chenhall (2003, p. 139), it is an established notion that more formal MCS, such as a higher extent of SOP, less BP and higher RAPM would be more appropriate in the second instance but the research findings (as presented in earlier sections) have not been conclusive. Incidentally, there may be some linkages between EU and TU in the sense that the choice of a dominant manufacturing processes is linked to the market demands and the strategy adopted by the company. Most organisations do not just opt for a mass-production or custom-made production – there may be historical reasons (e.g. patent holder) or they may have reacted to market demands. However, the focus of this study will be strictly on the task uncertainty aspect.

2.6.2. Superiors’ Use of Controls: Interactive and Diagnostic Use

The selection and development of this contextual variable has stemmed from various strands of the MCS literature. Firstly, at the core of the argument, there is the (limited) research on the extent of the relationship between the supervisor and the subordinate

⁵³ Originates from initial research on EU (e.g. Duncan, 1972; Khandwalla, 1972, Burns and Stalker, 1961)

⁵⁴ Originates from initial research on technology (e.g. Woodward, 1965; Perrow, 1970, Thompson, 1967)

⁵⁵ It would be safe to argue that a significant number of companies do not solely engage in mass-production or custom-made production but rather a combination of both

⁵⁶ Although these distinctions are easy to grasp from a manufacturing perspective, there is theoretically no difference in applying such concepts in a services industry (e.g. banks, insurance and hotels, etc)

manager which has so far focused on variables such as leadership style, trust, and information asymmetry (e.g. refer to Hartmann, 2000, p. 464). Intuitively, how far managers would be reacting (negatively or positively) to specific control systems could be dependent on how they perceived their supervisors to be using those controls. Hence, rather than focusing on a “vague” variable such as leadership style, it would be the supervisor’s style of using the MCS which could be relevant.

This is implicitly linked to Hopwood’s (1980) roles of information and control systems, which he linked to the uncertainty factor. As reported by Chapman (1997, p. 202), accounting systems can take the role of answer, learning, ammunition or rationalisation machine in the face of uncertainty. However, accounting systems remain at core basic information tools and it is the user’s perspective and interaction that causes the accounting system to be, for example, viewed more as a learning machine rather than an answer machine. Chapman’s (1997, 2002) following statement is useful in illustrating this argument:

“Where accounting is taken to provide answers, then the numbers can be held to speak for themselves. In a more complex setting however, the incompleteness of such numbers would suggest they become subject to moderation through other concerns”

Although the central theme of this statement is again focused on uncertainty, Chapman (1997) is taking for granted that the reader of the accounting information would become “aware” of the need to moderate and look for other concerns, whereas this may be dependent on how the superior or manager uses the information in the first place.

Simons (1987b; 1990; 1991; 1994; 1995; 2000) is credited for having first explored this issue as part of his studies on strategy and control systems. He focuses on senior managers’ use of controls to implement and develop strategy (Langfield-Smith, p. 223, 1997). Simons contends that the contingency framework linking the type of controls and strategic choice is not appropriate. In fact, this relationship is mitigated by the focus (or bias) of senior management on specific controls, which Simons describes as “interactive controls”. Once such controls are identified, it follows that subordinates will develop strategies or plans that would better suit these controls⁵⁷. Therefore, companies pursuing similar strategies would not necessarily be focusing on the same

⁵⁷ This is to be contrasted with “diagnostic” controls that are used to implement intended strategies. (Simons, 1995, p. 63)

category of controls due to senior managers' "personal" choices of "interactive" and "diagnostic" controls. Such personal attitudes or perceptions are not uncommon in most organisations and underlying factors for particular choices of controls may be due to, but not limited to, prior professional and/or academic background, and work experience.

Simons (1990) also carried out a comparative analysis of two companies within the same industry but applying different strategic orientations. His main findings are described in Table 2.2 below.

	Company A	Company B
Strategy Classification	Defender/Cost Leader/Adaptive	Prospector/Differentiator/ Entrepreneurial
Environment	Stable (Markets) & Unstable (Technological Change)	Rapidly Changing Conditions
Type of Controls	Diagnostic Controls for sustaining competitive advantage whereas Interactive Controls for product or technological change	Budgeting & Planning Systems kept in focus (interactive) to continuously debate on strategy & action plans.

Table 2.2: Controls and Strategy (adapted from Simons, 1990)

Simons' expectations are largely fulfilled since senior managers appear to focus on controls that monitor the more uncertain aspects of the environment. In addition, he (1991) proposes that senior managers will use multiple control systems interactively only during short periods of crisis or when the organisation is in transition (Langfield-Smith, p. 224, 1997). Simons (1994), to a large extent, validated his propositions by observing the behaviour of newly appointed senior managers insofar as the selection of controls was concerned.

Simons (1991, 1994) provide extensive discussions on the distinction between diagnostic and interactive control systems. For example, whilst he (1994, p. 172) considers diagnostic control systems as feedback systems used to monitor organizational outcomes and correct deviations from preset standards of performance, he views interactive control systems as systems that managers use to regularly and personally involve themselves in the decision activities of subordinates. In this respect, any diagnostic control systems (e.g. profit plans and budgets, variance reports, project monitoring systems) could be made interactive by being more involved in the monitoring such as:

- (1) *“ensuring that system is an important and recurring agenda to discuss with subordinates”*
- (2) *“ensuring that system is a regular focus of attention by operating managers throughout the organisation”*
- (3) *Participating in the face-to-face meetings with subordinates.*
- (4) *Continually challenging and debating data, assumptions and action plans.*

For example, a typical variance report usually triggers a diagnostic response from the supervisor i.e. not much reaction unless there is negative variance. On a more interactive level however, the supervisor could follow up on investigating any variance (positive or negative) or whether the absence of a significant variance could be related to the validity of budget targets. Hence, this would represent a shift from the “management-by-exception” principle to a more “hands-on management” one, insofar as the use of MCS is concerned. The longitudinal study by Simons (1994) investigated the use of controls in a strategic change situation for ten newly appointed managers and found evidence of a more interactive use of these controls (e.g. overcoming organizational inertia, communicating the strategic agenda, organising the implementation of timetables and targets). A particular aspect of the interactive use of controls is of interest and is quoted from Langfield-Smith (1997, p. 223):

“The choice of interactive controls provides the signal to subordinates about which aspects need to be attended to, and when new ideas should be proposed and tested. This activates organizational learning and new strategies emerge over time through the debate and dialogue that surrounds interactive management controls”

Based on his initial studies and propositions, Simons (1995; 2000) integrates the interactive/diagnostic conceptualisations in his levers of control (LOC) framework. As earlier explained in Sections 2.2.1 and 2.2.2, there are four inter-dependent control systems (belief systems, boundary systems, diagnostic and interactive) that seek to maintain a dynamic tension between creative innovation and predictable goal achievement (Henri, 2006, p. 533; Widener, 2007, p. 760). Simons (1995; 2000) essentially views boundary systems and diagnostic systems as negative forces which are counteracted by the positive forces (belief and interactive systems).

Two points can be inferred from the above. Firstly, the use of interactive style vs. diagnostic is thus considered to impact on subordinates’ perceptions in terms of usefulness and effectiveness of MCS. Secondly, whilst Langfield-Smith (1997) and by extension Simons (1994) associate interactive style with more positive consequences, it

is not yet evident that the supervisor's use of controls in a more interactive way will not lead to dysfunctional consequences. Indeed, "provides the signal to subordinates", "debate and dialogue" may have more negative connotations such as "pressure", "stress" and "tension". Intuitively speaking, when one considers that an interactive use of MCS would imply the "personal involvement" of top managers, it may be inevitably perceived more as a threatening situation for the managers concerned rather than having beneficial influences. For instance, as part of a field study on the introduction and use of a new performance measure system in a company, Tuomela (2005, p. 312) finds that the interactive use of performance measures may actually be viewed as even more threatening by certain individuals, since the interactive discussion of problem areas increase the visibility of actions and strengthen accountability to peers. However, it is only recently there has been more evidence emerging (whether case-based or questionnaire-based) on the general interacts and consequences of an interactive and diagnostic use of controls.

Abernethy and Brownell (1999) is one of the first empirical studies to have considered the interactive/diagnostic use of controls. More specifically, they examined the "style of budget use" (interactive or diagnostic) on the relationship between strategic change and performance within the Australian hospital sector. Based on theoretical arguments from Chapman (1997) and Simons (1994), the authors hypothesised that the hospital CEO's more interactive use of budget data will improve the relationship between strategic change and performance. This hypothesis was supported using responses from 63 hospitals CEOs. At the same time, it is important to acknowledge the construct measurement of the "style of budget use". Abernethy and Brownell (1999, p. 196) developed a four item 7-scale instrument which yielded a Cronbach Alpha of 0.59. In addition, respondents were given a fairly detailed explanation of the two types of budget use and were asked to choose the one that best reflected their style of use (forced choice, dichotomous measure). The point-serial correlation between these two measures was 0.41 and significant. However, the questions devised by Abernethy and Brownell (1999) were narrowly defined and would need to be amended to apply to a wider MCS context.

A second study that has applied Simon's (1991, 1994) interactive vs. diagnostic use of controls is Van der Stede (2001). However, in contrast to Abernethy and Brownell's (1999) model, Van der Stede (2001, p. 124) operationalised the supervisor's interactive

vs. diagnostic use of controls as part the micro-attributes of “tight budgetary control”. In this respect, he tried to develop a measure of interactive budgeting control out of a list of 14 items through a confirmatory factor analysis but only six items managed to generate a meaningful common factor (above 0.40). In view of these unsatisfactory results, Van der Stede (2001, p. 130) could only generate a variable known as “intensity of budget related discussions”.

Bisbe and Otley (2004) examine Simons’ expectations that the interactive use of MCS is positively-oriented and it will enhance product innovation. The authors argue that Simons’ work is however ambiguous in that it does not explicitly state whether the interactive use of MCS will eventually have an intervening (indirect) or moderating effect on the relationship between innovation and performance. They focus on several control systems, namely on an interactive use of budgets, balanced scorecards, project management systems and an overall management control system. They measured each control system via four items that are each anchored by a description of a low level of interactivity (in fact, equated to a high level of diagnostic use) and a high level of interactivity. Only three items merged as one factor and the Cronbach’s alpha showed a very good level of reliability (0.77 to 0.79). Based on responses from 40 companies, there was no evidence of an intervening effect relating to the interactive use of MCS on the relationship between innovation and performance. There was also no correlation between the interactive use of MCS and innovation and the authors conclude that the linkages suggested by Simons (1995: 2000) may be more complex (and perhaps non-linear) than initially thought (2004, p. 726). However, the moderating analysis provides some evidence that the interactive use of controls has an influence in the relationship between innovation and performance, but only for the case of budgets and the overall MCS variable. Bisbe and Otley (2004, p. 727-728) suggest that the interactive use of controls has this moderating influence by showing direction (providing focus to the innovation efforts), integration (facilitating a forum for debate and dialogue) and fine-tuning (allowing frequent adjustments to strategy implementation). However, they acknowledge that they did not consider the tensions and balances among the style of use of controls (diagnostic vs. interactive) - although the anchors to the MCS questions appear to suggest that a low interactive use was synonymous with a high level of diagnostic use.

In fact, Henri (2006) explicitly addresses this issue in his study of how performance management systems (PMS) contribute to organizational capabilities, which in turn would affect performance. He specifically models two PMS variables that are each related to a different use of a PMS, namely in an interactive and in a diagnostic use. Furthermore, in acknowledgment of the dynamic tension hypothesised by Simons (1995: 2000), Henri (2006) models the dynamic tension as a product term of the diagnostic and interactive PMS and subsequently argues that this variable has a positive effect on the capabilities. Although the author relies on a different approach to the variable measurement (related to executive support systems), the items used are very similar to the ones used by Abernethy and Brownell (1999) and Bisbe and Otley (2004). Crucially however, he measures the use of PMS diagnostically (4 items) and the use of PMS interactively (7 items) as two separate variables (2006, p. 551). Using structural equation modelling (SEM) and responses from 383 senior managers, he finds clear support for the direct negative impact of diagnostic PMS - and direct positive impact of interactive PMS - on organizational capabilities (market orientation, entrepreneurship, innovativeness, and organizational learning). This can be contrasted to the previous studies (Bisbe and Otley, 2004; Abernethy and Brownell, 1999) which only found a moderating effect of interactivity. There is however little support for the direct influence of the 'dynamic tension' variable, in that it appears only applicable to firms with high environmental uncertainty and with benefits only for organizational learning and entrepreneurship. Also, there was no significant relationship between the capabilities and financial performance. In considering these results, Henri (2006, p. 547) is critical of the universal expectation that dynamic tension can bring positive impacts. He refers to previous authors (Marginson, 2002; Lewis, 2000) who suggested that the negative dynamics to the tension can in fact overpower the positive ones. For instance, he mentions the possibility that this tension can trigger change while simultaneously activating defensive routines that inhibit change (2006, p. 547). The reference to defensive routines (Argyris, 1990) is indeed very topical to this present study in that it relates to the dysfunctional consequences of the tension between interactive and diagnostic use of controls. Whilst Henri (2006) brings crucial evidence on the separate (and competing) role of diagnostic and interactive use of controls, it however applies only to PMS and the lack of findings relating to the dynamic tension may well be influenced by the way this dynamic tension was actually measured in the study (i.e. as a product term).

Finally, Widener (2007) conducted an empirical analysis of the levels of control framework and considered all four elements of Simon's (1995: 2000) framework. She put forward expectations that each control element will have a positive association with organizational learning (benefit) and management attention (cost), which in turn would have a beneficial impact on performance. She also formally considers the inter-linkages between the four elements of control. She then relied on Henri's (2006) conceptualisation of diagnostic and interactive systems to assess how performance management (PM) systems are used in companies. Using structural equation modelling (SEM) and responses from 122 chief financial officers, she found that organizational learning is enhanced by the emphasis of the diagnostic system. Also, the interactive system influences the diagnostic and boundary systems whilst the belief systems influences each of the three other systems (2007, p. 781). She thus demonstrates the inter-dependencies and complementarities between the various elements of the LOC and asserts (2007, p. 782) that an important implication for organizations is that control systems must be used both interactively and diagnostically to ensure maximum benefit.

In conclusion, several studies, arguments and findings have been used to demonstrate the relevance of this contextual variable in the MCS environment. The arguments and issues raised by Chapman (1997) and Simons (1995) and the initial evidence put forward by Abernethy and Brownell (1999) and Van der Stede (2001) appears to indicate such relevance. At the time of designing and collecting the data, this present study did not benefit from the subsequent and important contributions by Bisbe and Otley (2004), Henri (2006) and Widener (2007) - which only re-asserts the importance and relevance of investigating the effects of the interactive/diagnostic use of controls. However, at this point, there were still construct measurement issues for this variable and the above earlier attempts have been the starting point for seeking a valid measure of the superiors' interactive vs. diagnostic use of controls. The findings of this study will be however considered in light of the more recent research/findings on Simon's LOC and the interactive/diagnostic uses of controls.

2.7. Dependent Variables in MCS Research

After having considered the MCS and contingency variables, this section will review the outcome variables that have been used in MCS contingency-based research. These are broadly classified as positive (e.g. performance, attitude, satisfaction, motivation)

and negative (referred here as dysfunctional behaviours) outcome variables. Although there is a notable stream of studies that consider MCS as the outcome variable, these are not reviewed in this study⁵⁸.

2.7.1. Performance and other positive outcome variables

As initially proposed by Otley (1980), the inclusion of an outcome variable in a contingency-based study is a critical pre-requisite since the traditional objective has been towards finding the correct match between a (or several) contingent variable(s) and a firm's control systems. This "match" or "fit" is evidenced by the outcome variable and Otley's (1980, p. 99) following statement leaves no doubt about that:

"...In order to progress beyond the mere association of particular contingencies and accounting systems, a judgement has to be made about the impact of the accounting in aiding organizational performance"

In other words (those of Chenhall, 2003, p. 134), good fit meant enhanced performance whilst poor fit implies diminished performance. However, Otley (1980) was prompt to acknowledge the conceptual difficulties in defining performance or effectiveness - an issue which was earlier raised by Evan (1976) and Steers (1977). Nevertheless, the increasing interest in applying the contingency framework and in researching more contingent variables appears to have put aside these earlier concerns. More recently, Chenhall (2003, p. 132) reviewed the outcome variables of MCS and classified them as behavioural (e.g. job satisfaction) and organizational outcomes, such as managerial or departmental performance (refer also to Kwok and Sharp, 1998). Whilst he reports that these have been used extensively, he raises the common issue that all these measures are self-assessed and thus could be highly subjective. On the other hand, the use of secondary-data outcome variables (e.g. stock prices returns, profits) has been scantily considered, possibly due to the difficulties in building theoretical links between internal management processes and externally determined performance data⁵⁹.

Therefore, a significant number of empirical studies in behavioural management accounting research have sought to test the efficacy of their propositions and

⁵⁸ For a discussion of theoretical issues involved in using MCS as the dependent variable, refer to Chenhall (2003, p. 135)

⁵⁹ Indeed, even the determination of accounting profit is significantly subject to generally accepted accounting principles and share prices are determined by market forces and are subject to exogenous factors.

relationships by examining the impact of contextual or institutional variables on one, or several, specific dependent variable(s). The most commonly used ones are job performance (e.g. Rebele et al, 1996), job satisfaction (e.g. Pasewark and Strawser, 1996), organisational effectiveness (e.g. Abernethy and Stoelwinder, 1991), and managerial performance (Gul et al, 1995). But there has not been any research investigating the actual power and extent of the relationships between MCS and positive outcome variables. These could have shed some light on the generalisability of such variables in MCS studies. In this respect, Table 2.3 provides a summary of findings on the contingent model's explanatory power, based on a non-exhaustive list of 11 MCS studies⁶⁰, particularly for BP and RAPM. From the table, several points can be noted:

- (a) Managerial performance is indeed a commonly used positive outcome variable, although its actual measurement had changed in several studies to take into account the problem of simply averaging the 9 items. However, the reported correlations between control system and managerial performance have widely fluctuated and have in many cases been non-significant. Even in situations where the supervisors were asked to rate their subordinates, the relationship to BP was not significant.
- (b) In the two surveyed studies, job satisfaction did generate similar results in relation to BP but not for RAPM.
- (c) Finally, the use of financial (such as profit data) measures (coupled with a subjective evaluation of managerial performance) did not generate any significant relationship with BP.

It is worth mentioning that one should undoubtedly expect different degrees of relationship between a control system/mechanism and the outcome variable as this could be due to some contingent variables. However, the fact that non-significant correlations are observed for such direct relationships raises questions as to the appropriateness of the above-mentioned outcome variables. In this respect, the negative consequences of MCS appear to be of more interest and are reviewed below under the heading of “dysfunctional behaviour”.

⁶⁰ These studies had reported correlation matrices.

Study	Control System or Mechanism	Positive outcome variable	Instrument used for outcome variable	Significant Correlations (r)
Govindarajan (1986)	BP	Managerial Performance	9 item, from Mahoney et al. (1963, 1965)	0.23
Govindarajan (1988)	RAPM	SBU Effectiveness	Modified 8 item (weighted average) from Govindarajan and Gupta (1985)	Not significant (ns)
Mia 1988	BP	Managerial Performance	One 9-scale overall performance rating by respondent's supervisor	Ns
Mia (1989)	BP	Managerial Performance	One 9-scale overall performance rating by respondent's supervisor	Ns
Dunk (1992)	BP	Job Satisfaction	20 items, from Weiss et al. (1967)	0.44
Harrison (1992)	(a) RAPM (b) BP	Job Satisfaction	20 items, from Weiss et al. (1967)	-0.04 0.37
Shields and Young (1993)	BP	Firm-Wide Performance	Combination of Net Income, Stock Price, ROI and subjective rating	Ns
Gul et al (1995)	BP	Managerial Performance	9 item, from Mahoney et al. (1963, 1965)	Ns
Lau et al. (1995)	(a) RAPM (b) BP	Managerial Performance	9 item, from Mahoney et al. (1963, 1965)	-0.42 -0.39
Nouri and Parker (1998)	BP	Job Performance	Modified 8 item (weighted average) from Govindarajan and Gupta (1985)	0.34
Lau and Buckland (2000)	(a) RAPM (b) BP	Managerial Performance	9 item, from Mahoney et al. (1963, 1965)	0.29 Ns

Table 2.3: Positive Outcome Variables used in BP and/or RAPM Studies

2.7.2. Dysfunctional Behaviour

2.7.2.1 Defining Dysfunctional Behaviour

A more negatively oriented dependent variable is dysfunctional behaviour, which has its origins traced back to Argyris' (1952) seminal case study-oriented paper. This term describe the “*..organisational and behavioural effects seen in supervisors induced by the use of budgeting*” (Hartmann, 2000, p. 452) and refers to the violation of control system rules and procedures (Jaworski and Young, 1992, p. 17). In more precise terms, dysfunctional behaviour leads to the managers experiencing negative feelings towards their superiors, due to their perceptions of non-usefulness and inadequacy of the

budgeting process. Despite the implications of having a subjective variable such as “negative feelings” in a management accounting research process, Hartmann (2000, p. 452) contends that dysfunctional behaviour is not just a human tendency⁶¹, but a natural reaction that can be “rationally” expected in response to controls and processes. The extent to which such controls are perceived to impact on performance, evaluation, and ultimately rewards, is bound to increase managerial stress and tension, thus leading to dysfunctional behaviour. Similarly, Argyris (1990) contended that managers facing varying degrees of embarrassment or threat may react by activating ‘organizational and defensive routines’ (i.e. a different label that refers to dysfunctional behaviour) to protect themselves from the perceived outcome. In this respect, Jaworski and Young (1992, p. 18) expect dysfunctional behaviour to be translated by “...actions in which a subordinate [purposefully] attempts to manipulate elements of an established control system for his own purposes”. However, Jaworski and Young (1992) did not explicitly study the direct link between control systems and dysfunctional behaviour. They only concluded that it was role conflict that led to job tension but they could not find any definitive links between role conflict and dysfunctional behaviour. There is also no indication that Jaworski and Young’s (1992) conceptualisations and measures of dysfunctional behaviour were used in subsequent studies.

More recently, Robbins (1994) uses the term “strange behaviour” and illustrates it with the common example of managers embarking on a spending frenzy to exhaust their budget before a given date, in order to avoid cutbacks in the next period’s allocation. This case in point, however, merely gives credit to Jaworski and Young’s (1992) comments on the use of anecdotes when referring to dysfunctional behaviour:

“..while behavioural theories such as dissonance, goal setting and power theories have been used to explain dysfunctional behaviour, it has been difficult to draw clear conclusions regarding why such behaviour occurs as many of the findings are taken from anecdotes or small sample studies..”
(1992, p.17).

Ashton (1976) also examined the issue of dysfunctional behaviours as the opposite and unintended consequences of the traditional “deviation-counteracting feedback” control mechanism. Indeed, a control mechanism can be viewed as a “target-monitor-report-reaction to achieve target” loop, which obviously aims at eliminating variances and ensuring achievement of targets. However, Ashton (1976, p. 289) believes that a

⁶¹ i.e. which would then be prone to claims of “irrationality”.

“parallel” loop is also at work in organisations and contends that the unintended and dysfunctional consequences generated by the control system may be perpetuated and amplified, hence resulting into a “deviation-amplifying feedback”. Within the context of a budgetary control system and consistent with Argyris’ (1953) comments, Ashton (1976) provides some examples of “deviation-amplifying feedback” instances such as sub-units (departments) being “self-centred” rather than organisation goals-focused⁶² (p. 293) and difficulties in gathering “truthful” information to assign responsibilities for unfavourable variances (p. 294). Although Ashton (1976) presents a very convincing model for unintended and dysfunctional consequences of control systems, evidence as to the extent of such “amplification” or “ripple” effect of such consequences remains to be identified, and actually traced back to the control system itself. Interestingly, the later writings by Argyris (1990) and Simons (1995: 2000) seem to suggest that the ‘ripple’ effects of controls systems identified by Ashton (1976) may actually become acceptable (and taken for granted) by the organization and be an indicator of the so-called dynamic tension expected from the interaction of different uses/types of control systems.

To improve one’s understanding of dysfunctional practices within an organisation, a more practical examination of specific forms of dysfunctional behaviours is required.

2.7.2.2 Forms of Dysfunctional Behaviour

There are various forms of dysfunctional behaviours that can occur in an organization but with common and underlying objectives: to use the rules and procedures to one’s advantage⁶³ or with a view to avoid a potential threat to one’s position / standing in the organizations. Hirst (1983, p. 596) considers dysfunctional behaviour to be translated in rigid bureaucratic behaviours, strategic behaviours, resistance and invalid data reporting⁶⁴. A more thorough description of the forms of dysfunctional behaviour, as reviewed by Birnberg et al. (1983), can be listed as follows:

(a) Smoothing – The subordinate utilises the information system to his/her benefit by altering the pre-planned free flow of data without altering the actual activities of the organization (Ronen and Sadan, 1981). The most common example would be the

⁶² Hence creating conflicts between organisational sub-units.

⁶³ Or to one’s perceived advantage, as pointed out by Jaworski and Young (1992, p.18).

⁶⁴ Hirst also considered “social withdrawal” to be a form of resistance and hence, a form of dysfunctional behaviour (1983, p. 597).

booking of sales/expenses achieved/incurred in the current period to subsequent periods.

(b) Biasing and Focusing – The manager has flexibility over the various indicators or types of information he/she can report. Biasing would imply selecting the one(s) suiting best the circumstances and more favourable to the manager. Such situations usually exist when managers are being required to provide estimates of future events⁶⁵ (Birnberg et al., 1983, p. 121). This is very much related to the idea of focusing, since the attention of superiors is being diverted to specific, and more positive, elements of a system. More precisely, Birnberg et al. (1983, p. 121) note that focusing occurs when certain aspects are either enhanced (highlighted) or degraded (hidden). A further dimension of focusing would be to validate a certain course of action (e.g. a capital investment decision; Bower, 1970), using “hard” facts and figures, to hide an actual and more subjective justification.

(c) Filtering - According to Read (1962), filtering occurs when information is withheld because the subordinate thinks that this could be used by his/her superior to hinder the subordinate’s personal goals (e.g. career progression). This was later confirmed by O’Reilly and Roberts’ (1974) study. Birnberg et al. (1983) also classify the delaying of reports, over-presentation (to cause information overload) or over-aggregation as a form of filtering. Another example documented by Hayes and Cron (1988) was the impact of the introduction of zero-based budgeting (ZBB) practices on dysfunctional behaviours. The authors contended that the implementation of the ZBB would lead to an increase in task uncertainty and unless organizations adjusted their measures of performance to reflect the openness of ZBB, then one could expect a higher level of dysfunctional – principally in the form of invalid data reporting.

(d) Illegal Acts or Falsification – Such dysfunctional behaviours may include forgery of documents and reports i.e. existing information is intentionally altered to satisfy required norms and variances. Examples of studies that have documented such practices are Mars (1982), Vaughn (1983) and Simon and Eitzen (1986).

⁶⁵ For example, refer to Lowe and Shaw’s (1968) behaviour of area sales managers when required to submit sales forecasts.

Jaworski and Young (1992, p. 19) categorise the above-mentioned practices as “strategic information manipulations” whereby the control system, and not the process itself, is being influenced⁶⁶. On the other hand, a second category of dysfunctional practices, namely “gaming performance indicators”, has perhaps more fundamental implications for the organization than those caused by strategic information manipulations. Indeed, gaming involves the selection of actions and processes with a view to generating favourable reports and feedback for the subordinate. This behaviour would not be dysfunctional if the manager had expected such practices and enacted rules/procedures to maximise his/her own (and the organisation’s) benefits from the subordinates’ actions. Hence,

“..gaming of a performance measure is said to exist when the subordinate knowingly selects his activities so as to achieve a more favourable measure on the surrogate used by the superior for evaluation at the expense of selecting an alternative course of action that would result in a more desirable level of performance as far as the superior’s true goal is concerned.” (Birnberg et al., 1983, p. 123).

In a similar vein, Jaworski and Young (1992) view gaming as a “resistance” action by subordinates since “...*the control system measures performance only on a limited number of the subordinate’s required tasks, or measures performance on the wrong tasks*” (1992, p. 19). It follows that gaming has more direct economic consequences for an organisation. For example, maintenance costs are not incurred to influence profitability ratios, sales volume is pushed up without due regards to the credit policies, or to the fostering of long-term customer relations or to company reputation. There is also a short-term orientation aspect behind such gaming practices. Merchant (1990) coined the above as “management myopia” when he investigated the Japan-U.S. cultural divergence on the dysfunctional effects of controls for profit centre managers. He also related the myopic behaviour to “...*a concomitant discouragement of new ideas, particularly for the expenditures that promise long term or less certain payoffs.*” (1990, p. 301). In addition, Narayanan (1985) devised a model to show that managers possessing private information regarding their decisions have incentives to make decisions yielding short-term profits but which are not in the stockholders’ best interests.

⁶⁶ As an analogy, actions involving filtering, biasing and smoothing are quite similar to the creative accounting or earnings management practices adopted by directors to influence the published financial performance and position of a reporting entity.

Overall, several but separate elements of dysfunctional behaviour such as smoothing/falsifying (Flamholtz, 1979), data manipulation and short-term orientation (Merchant, 1990; Chow et al, 1996), invalid data reporting Hayes and Cron (1988), and budgetary slack (Lowe and Shaw, 1968; Onsi, 1973) have been studied and there is some evidence of their existence and relationships to certain control systems (particularly budget-based). However, it is believed that the occurrence of dysfunctional behaviours has not been considered systematically. This may have been the result of difficulties in identifying and operationalising dysfunctional behaviour, namely its dependence on different proxies (tension, stress) or in the use of ‘micro’ conceptualisations for measuring dysfunctional behaviour.

2.7.2.3 Operationalising Dysfunctional Behaviour

These two broad categories of dysfunctional behaviours (strategic manipulations and gaming) identified above may not necessarily contain all the types of dysfunctional behaviours⁶⁷. Nor do these practices actually operate in isolation of one another⁶⁸. Managers may thus be engaged into gaming and strategic manipulation at different levels of combination. Therefore, a methodological problem has been to determine how to operationalise the concept of dysfunctional behaviour. Indeed, Hirst (1983, p. 603) and Merchant (1990, p. 298) note the difficulties in obtaining honest responses, given the sensitive and “illicit” nature of dysfunctional behaviour. In this respect, Hirst (1983) used surrogate measures such as tension and social withdrawal (viewed in terms of subordinate-superior relations) to capture dysfunctional behaviour but eventually suggests the use of case study approaches for future research.

On the other hand, Merchant (1990), Jaworski and Young (1992) and Chow et al. (1996) used various constructs to measure dysfunctional behaviour. Appendix 2.5 provides a summary of the various questions used by these earlier studies and their respective Cronbach-Alpha statistics. From these constructs, it is noted that:

- (a) The measure used by Jaworski and Young (1992) do overlap between the different categories and types of dysfunctional behaviour in contrast to the measures used by

⁶⁷ The issue of budgetary slack will be considered separately in the next section.

⁶⁸ Birnberg et al. (1983, p. 120) broadly term these practices as “..*methods of distorting the information system*”.

Merchant (1990) and Chow et al. (1996) i.e. the latter studies attempt to distinguish between strategic information manipulations (manipulation of performance measures) and gaming (short-term orientation).

- (b) Despite earlier arguments to avoid direct “sensitive” measurements (e.g. Hirst, 1983 and Otley, 1978), the questions relating to data manipulation (in Merchant, 1990) were unambiguous and may result in non-responses⁶⁹.
- (c) Direct questions involving specific and detailed dysfunctional practices (e.g. shifting funds between accounts to avoid budget overruns) may elicit respondents to provide ethically motivated attitudes rather than generating a measure the incidence (or extent) of dysfunctional behaviour.

In light of the above, it is noted that a valid measure of dysfunctional behaviour is not an easy task and to date, Jaworski and Young’s (1992) questions have yet to be replicated and validated. Even if their questions do not attempt to distinguish strategic data manipulations from gaming practices, they have appeared less inclined to generate ethically motivated answers. Furthermore, a ‘seemingly’ dysfunctional practice, namely the creation of budgetary slack by a subordinate, has been extensively researched and measured but has been consistently argued as not being “dysfunctional” (Merchant and Manzoni, 1989; Merchant, 1989; Davila and Wouters, 2005). The following section considers this view whilst the present study proposes to improve Jaworski and Young’s (1992) measures from previous findings on the validity of budgetary slack-oriented questions.

2.7.2.4 The Case of Budgetary Slack

As mentioned above, budgetary slack (the choosing of a more achievable sales or expenses forecast) has been kept separate from the list of possible dysfunctional behaviours. In fact, there has been significantly more research into budgetary slack⁷⁰ with an emphasis on understanding the role of managerial participation in the budgeting

⁶⁹ For example, a direct question by Merchant (1990) on falsifying data caused negative reactions among managers during a pilot test. Instead of looking for indirect measures or other proxies, the researcher removed the item from the final questionnaire (p. 303, 1990).

⁷⁰ Lukka (1988) also proposed the concept of “budgetary bias” which is made up of budgetary slack and “upward-bias” (the exaggeration of forecast performance).

process⁷¹. Lowe and Shaw (1968) argued that first, managers built slack into their budgets as a means of protecting their personal interests, and second, that it was a rational economic behaviour for them to do so. In this respect, slack can be viewed as provoked and rational - i.e. a form of dysfunctional behaviour - which cuts across both categories of dysfunctional behaviour (information manipulation and gaming). This issue was raised by Jaworski and Young (1992) but slack was finally not included on the grounds that a superior can encourage “...*slack building behaviour by subordinates to increase budget commitment and to reduce incentives to engage in potentially dysfunctional practices [other than slack] to meet the budget*” (1992, p. 19). Therefore, budgetary slack would act as a moderating variable and consequently reduce other dysfunctional behaviours. However, this argument remains to be theoretically established and empirically tested, despite Van der Stede’s (2000) findings of a negative relationship between slack and short-term orientation. Indeed, this study focused on only two forms of dysfunctional behaviour so that “...*some spillover effects with other forms of dysfunctional behaviour (e.g. earnings management) may have remained undetected*” (Van der Stede, 2000, p. 620).

As in the case of other dysfunctional behaviours, the extent of budgetary slack in an organization is also a difficult construct to measure. Kwok and Sharp (1998, p. 144) note that in this situation, researchers often resort to the self-reported measure of propensity to create slack, which is assumed to be an adequate proxy for budgetary slack at the organizational level. The most common measure was developed by Onsi (1973) and coined in terms of general attitudes on budget and slack⁷². However, as pointed out by Kwok and Sharp (1998, p. 147), the four-item statements were measured on a 5-point scale anchored by “always” and “never”. The latter would suggest an attempt to directly gather the “extent” of budgetary slack within the organization rather than seeking “agreement or disagreement” to an attitude-oriented question. Indeed, the statements are general in nature and seek only opinions, which would then “approximate” to the actual extent of dysfunctional behaviour in the organization. Such reasoning is clearly aimed at obtaining more “truthful” responses, although this is not mentioned in Onsi’s

⁷¹ For example, refer to Merchant (1985a), Lukka (1988), Young (1985), Dunk (1993a) and Dunk and Nouri (1998).

⁷² Onsi’s (1973) slack attitudes and slack manipulation statements are provided in Appendix 5.

(1973) study⁷³. In addition, the term “propensity to create slack” used by subsequent studies (Merchant, 1985a; Govindarajan, 1986; Nouri, 1994; Lal et al, 1996; Nouri and Parker, 1996⁷⁴) to describe Onsi’s (1973) instrument appears more pertinent, given that these statements could in fact measure the respondent’s *potential* for dysfunctional behaviours.

In contrast, Dunk (1993a, p. 402) devised another instrument to measure managers’ perceptions of the level of slack in their budgets. The items are reproduced in Appendix 5 and aim at extracting a more “specific” measure of slack via the use of first person (i.e. “*I have to..*” or “*..my area of..*”) sentences, in comparison to the general statements developed by Onsi (1973). Thus, Dunk’s (1993a) questions appear to be more appropriate to proxy organizational slack, despite the fact that they are more direct⁷⁵ in nature and may result in non-responses. However, the other alternative would be more “general” questions, which may capture ethically oriented attitudes.

In this respect, the Jaworski and Young’s (1992) instrument is considered to be the most appropriate, as amended by the context of the current study (different management control systems) and by the inclusion of some of Dunk’s (1993) budgetary slack items, to capture the managers’ perceptions of the extent of dysfunctional behaviours in their departments.

2.7.2.5. Dysfunctional Behaviour: Concluding Remarks

In spite of a long standing and regular attention given to some of the negative consequences of MCS (i.e. JRT, stress, budgetary slack, data manipulation, shorter-term orientation), there has been very little focus and research on managers’ dysfunctional behaviour as a more general concept and its potential sub-components i.e. information manipulations and gaming. In essence, the phenomenon has been studied on a piecemeal and *ad hoc* basis. For instance, the elements of dysfunctional behaviour discussed in Birnberg et al. (1983) have not been evaluated empirically. Jaworski and

⁷³ Furthermore, the slack manipulation item “*With some skill, a manager can make his unit performance just as he wants*” is also worthy of interest in the context of developing a measure of dysfunctional behaviour.

⁷⁴ All these studies used Onsi’s (1973) four-item instrument with the “strongly agree” to “strongly disagree” anchor points.

⁷⁵ And perhaps less threatening than the Merchant’s (1990) items relating to the manipulation of performance measures.

Young's (1992) model also does not specifically argue and test for the direct effects of control systems on dysfunctional behaviour and merely alludes to the possibility of such occurrences. At the same time however, there is an emerging voice in the literature that questions whether dysfunctional behaviour is actually 'dysfunctional' organizationally (and individually) and whether organizations can ultimately 'benefit' from such behaviour in letting managers 'get away' with some practices. In particular, it is in the budgetary slack area that the related evidence and arguments have been the most persisting (Lukka, 1988; Lillis, 2002; Davila and Wouters, 2005) but similar discussions have also recently become topical in the RAPM literature (Hartmann, 2005; Marginson and Ogden, 2005).

The study of managers' behaviours in response to control systems is thus intended to be one of the key contributions of this study. As discussed in the previous sections, the measurement of 'dysfunctional behaviour' has posed problems and issues to previous researchers and this may have curtailed further empirical work in this domain. There has been also little interest in the effects of contextual factors that might enhance or diminish the effects of dysfunctional behaviour further to the set up of control systems. As mentioned in the first chapter, another key contribution would be to improve the analysis techniques and methods. These are now reviewed.

2.8. Contingency-based MCS Studies: Research Methods and Analysis Issues

In the recent years, there has been closer attention into the research and statistical methods used in MCS studies, specifically in relation to the contingency "fit" hypotheses. Several papers, which will be later reviewed in this section, are direct testimony to this increasing interest e.g. Hartmann and Moers (1999, 2003), Gerdin and Greve (2004) and these authors have illustrated their arguments using the RAPM and budgetary participation studies. Although there have been earlier references and comments on the various research methods used (e.g. Briers and Hirst, 1990; Langfield Smith, 1997; Chapman, 1997), these have been usually considered to be less important compared to more "theoretical" or "conceptual" issues in the MCS literature. These research methods issues are categorised into three main headings, namely data collection methods/sample selection, variable measurement and construct reliability/validity, and statistical analysis of "fit".

2.8.1. Data Collection Methods: Implications for MCS Studies

2.8.1.1. Using Mailed Questionnaires

As mentioned by Briers and Hirst (1990, p. 256), the early MCS studies tended to be more case study oriented. For example, the seminar work by Argyris (1952) involved the use of qualitative data, such as observations and interviews, to study the budgeting practices in four US organisations (cf. Macintosh, 1994, p. 212). However, the use of closed-ended (principally Likert-based) mailed questionnaire surveys⁷⁶ to elicit views, perceptions, attitudes and opinions quickly became the most pro-eminent research method in MCS studies. Almost in parallel, and presumably in response to a greater need for external validity in a statistical analysis process, there was a gradual shift from one or few-companies study to cross-sectional studies involving a relatively large number of firms and/or respondents. This gradual shift started with Hopwood (1972) and Otley (1978), who used questionnaires in one single company⁷⁷ studies. This may have prompted Chapman (1997, pp. 189) to state that contingency studies have come to be seen as large scale, cross-sectional questionnaire-based research, which examines the interaction of a limited number of variables. However, he does acknowledge that the use of questionnaires were preferred in view of the different research approach selected i.e. earlier studies were exploratory in nature and identified dominant contingencies from the observation of MCS in a particular organisation whilst the more recent explanatory approach involved the study of MCS, using a set of pre-conceived hypotheses (1997, p. 190). In her review of MCS and strategy studies, Langfield-Smith (1997) is also less critical of the survey instrument.

The use of mailed survey methods is not unique to management accounting and control research. For example, Ghauri (1995, p. 59) reported that surveys and questionnaires are the most popular data collection method in business studies. Hence, there are clearly very diverging views as to the use of questionnaires and one may argue that this is related to the availability of, and/or accessibility to, secondary data. For example, most financial accounting studies do rely on publicly available annual reports whilst finance-oriented research can rely on databases of financial and econometric data, both

⁷⁶ One important note: although one may carry out a close-ended questionnaire survey through interviews (face to face or phone), the mail based is more anonymous and avoids prevents rater bias. Of course, on the other hand, the absence of control on who is exactly responding to the mail survey is one notable downside aspect.

⁷⁷ However, Otley (1978) also used face-to-face interviews in his study.

generally available thanks to a regulatory requirement. However, by definition, the majority of management accounting research involves access to internal company information and practices. These are not publicly available. Also, access to company premises, staff and documents for case-study or experimental-based data collection is no doubt difficult to arrange for and manage. In an increasingly competitive business environment, access to internal information is fraught with confidentiality clauses. In addition, the company staff may not be too inclined to respond truthfully or accurately on a face-to-face basis because of possible repercussions to their career prospects or for internal politics. In other words, discarding questionnaire based surveys for qualitative/case study-type data collection (such as observations or interviews) may not be necessarily an easier or less controversial exercise. In this respect, Ghauri (1995, p. 91) states:

“...normally data collection through case studies is considered an easy method, but this is a misconception. In fact data, collection through case studies is much more demanding than through surveys or experiments.....She [the researcher] should not only be able to ask relevant and probing questions, but should also have the capabilities to listen and interpret the answers given.....This is particular important in single case studies, as the researcher has no other case with which to compare the findings”.

The above may therefore explain the previous scant use of case-study qualitative collection in MCS research, particularly within the contingency paradigm. Young (1996, cited from Smith, 2003, p. 118) did attribute the decreasing use of questionnaires due to “a growing interest in alternative forms of research which can provide richer data sources”. However, it is argued that this change in research method in MCS studies may be due to the interest into studying alternative theories of MCS, rather than being solely due to the issues in using a mailed questionnaire survey. For example, there has been a notable interest in institutional theory in management accounting research (e.g. refer to Scapens, 1994; Carruthers, 1995; Baxter and Chua, 2003; Chenhall, 2003). However, the nature of the theory (the study of institutional forces in the management control process) is such that the dominant method of data collection has been through observations, interviews, analysis of company internal management reports, and related qualitative data collection techniques⁷⁸. Within the contingency-based research however, qualitative data collection has generally remained to be an exception (e.g. Archer and Otley, 1991; Knight and Wilmott, 1993; Simons, 1994; Simons 1990;

⁷⁸ Examples of such recent management accounting and control-related studies are Burns and Scapens (2000), Walker and Johnson (1999), Abernethy and Chua (1996) and Amat et al. (1994).

Marginson 2002). Nevertheless, there is no denying that these particular studies do generate valuable findings (Langfield-Smith, 1997, p. 224).

In addition, a study of more recent MCS contingency-based published research (i.e. after Young's 1996 study of 1985-1994 studies, see Appendix 2.6)⁷⁹ revealed that 13 out of the 15 selected studies have used close-ended mailed questionnaires for data collection purposes. Only one study actually used qualitative data collection methods. It is also noteworthy that one of these studies (Davila, 2000) had used interviews and other qualitative data collection methods to either develop their measures for the questionnaire⁸⁰. However, the key conclusion is that recent MCS research does not appear to be significantly departing from the use of questionnaires as a data collection method, as was earlier predicted by Young (1996) or more recently by Van der Stede et al. (2005). Although it is clear that the questionnaire survey has notable limitations, its practicality and feasibility attributes has contributed to its continued use in recent MCS studies. Nonetheless, this leads to a discussion on the pertinent issues of sample selection and response rate.

2.8.1.2. Sample Selection and Response Rate

Most MCS researchers aspire to some level of generalisation of their results and one important element in moving towards generalisation is the sample selection and the response rate. Young (1996) reported an average of 207 as target population and an average of 146 respondents in a review of questionnaire-based studies. He advised (cf. Smith 2003, p. 119) the use of more random sampling (rather than convenience sampling) and follow-up procedures to achieve larger sample sizes, hence leading to an improvement in the statistical significance of the results.

However, MCS research is plagued by the lack of reliable publicly available information on companies' internal management and thus a clear definition of what constitutes a population is sketchy at best. Researchers sometimes rely on business and

⁷⁹ This is by no means a comprehensive survey as it only focused on two key publications namely Accounting, Organizations and Society (AOS) and Accounting and Business Research (ABR) – Refer to Appendix 2.6 for the detailed list.

⁸⁰ This is not to be confused with pilot testing where one seeks to confirm the validity of existing measures or items.

trade directories (e.g. Kompass) or government public databases⁸¹ to identify a target population but these sources do rarely include all companies or organizations. In addition, the companies' size (e.g. employee numbers, turnover or asset values) can be used to limit the population to companies that have a defined management structure (e.g. functional managers, business unit managers etc). But even though these now can be reliably obtained, there is still the problem of ensuring sufficient response from managers. For example, it may be company policy not to respond to any questionnaire surveys (e.g. Chenhall and Langfield-Smith, 1998, p. 249) or simply managers/companies do not perceive any benefit in answering to surveys⁸². However, a review of the studies listed in Appendix 2.6 does show a relatively satisfactory response rate for most studies that have reported the use of a random sampling method (cross sectional) - ranging between 47% to 56% - although some studies have had low (absolute terms) numbers of respondents (e.g. Abernethy and Lillis, 1995).

In view of the perceived difficulties in seeking a suitable response rate from cross-sectional samples, several researchers have preferred to sacrifice a higher level of generalisation for a higher response rate by using convenience sampling or by focusing on key industries/sectors. Hence, these are less cross-sectional in nature or are outright focused on one large group of companies. In this respect, the company's cooperation is usually sought prior to the mailing of questionnaires and the company can provide a cover letter to encourage participation. However, and based on the review of past studies in Appendix 2.6, the success rate of convenience sampling is less consistent than expected. Gul et al (1995) only achieved a 22% rate (37 responses) using a convenience sampling but nevertheless carried out a full moderated regression analysis (4 variables). O'Connor (1995) and Chow et al. (1999) respectively achieved 44% and 41%, despite using a convenience sampling method. Others, such as Shields (2000) and Tsui (2001) have been more successful with response rates in excess of 70%. This seems to indicate that convenience sampling or company-backed surveys may not automatically guarantee good response rates.

In conclusion, there are clearly contradicting views on the type of sampling strategy to pursue. In the particular context that the data collected will be used in relatively

⁸¹ Usually, information for individual companies obtained from official census or other government-led data collection exercises cannot be legally released to third parties.

⁸² Particularly, this may be attributed to the fact that MCS target respondents are often non-accounting related managers and may find such research to be of little relevance to their work.

complex statistical models, Chenhall (2003, p. 156) states “...*It is noteworthy that to gain acceptable statistical power in more complex models large sample sizes are required. Thus, the relatively small samples in some contingency-based studies limit the statistical power of the results*”. On the other hand, Birnberg et al. (1990, p. 42) worthily reminds that the “*external validity depends on the effectiveness of the sampling strategy for achieving a random or representative sample, and the developed constructs*”. Hence, whilst the former author appears to make the case for researchers to maximise as far as possible sample sizes, the latter one stresses on the need to seek external validity through random sampling. Indeed, Birnberg et al. (1990, p. 47) state:

“Perhaps the greatest strength of a survey, on the many dimensions discussed, is the ability to randomly sample a large percentage of a population and to obtain measurements on many variables. Often, though, low response rates from a large population can cause survey researchers to seek convenient target populations (e.g. within a single firm) from which they hope to obtain a higher response rate. When this strategy is employed, any sampling advantage over other methods is reduced.” (emphasis added)

In light of the above, and given that this current study will use statistical methods of analysis on a cross-sectional basis, it would thus be preferable to seek external validity through random sampling. However, the next step would be to consider construct reliability and validity since it is a necessary condition to make valid inferences to other populations.

2.8.2. Variable Measurement and Construct Validity/Reliability.

As stated by Kwok and Sharp (1998, p. 137), a key methodological concern in behavioural accounting research is good construct measurement. This is particularly critical in the case of mailed questionnaire surveys because the researcher is not in direct contact with the respondent and cannot directly intervene to avoid interpretation problems. In addition, because of the difficulty in measuring abstract and complex concepts such as managerial performance or budgetary participation, there is generally a reliance on multiple item scales (i.e. more than one question to measure the construct) which would then converge to one unobservable variable. Thus, one hopes to “corner” a reliable estimate of the respondent’s true attitude, opinion or expectation with the use of multiple-item questions, generally through the use of Likert-scales. The collected

responses are then coded and subjected to reliability and validity tests⁸³. Whilst the former seeks to confirm the degree to which the measures are free from errors and therefore yield consistent results, the latter attempts to identify the extent to which a scale operationalizes the construct it is intended to represent (Kwok and Sharp, 1998, p. 142).

Insofar as MCS studies are concerned, there has been varying levels of success in achieving satisfactory construct reliability and validity. For example, the six-item budgetary participation scale (Milani, 1975) has almost been consistently used for the last 25 years and this had even led Chenhall (2003, p. 131) to question whether such measures should not be “updated” in light of new developments in management accounting⁸⁴. Nevertheless, the “stable” use of the Milani (1975) scale contributes to a higher degree of comparison amongst studies. Another example of a “stable” construct used in MCS studies is the Mahoney et al’s (1963) and Mahoney’s (1965) nine-item measure of “managerial performance”⁸⁵.

On the other hand, the Reliance on Accounting Performance (RAPM) construct is more controversial as reviewed in Vagneur and Peiperl (2000) and Otley and Fakiolas (2000), who investigated the numerous and different measures used to operationalize RAPM. For example, some studies apply a strict “version” of the construct i.e. extent of the supervisor’s reliance on accounting measures for performance evaluation purposes as (of course, as perceived by the supervisee and as measured by the Hopwood, 1972 method⁸⁶ relative to other measures) whilst others associate RAPM with bonus determination (e.g. Govindarajan, 1985, cf. Otley and Fakiolas, 2000, p. 505) or with extent of use of accounting information (e.g. Brownell, 1985).

In summary, if one should consider the above-mentioned constructs as extremes within the spectrum of MCS-related measures (from a very “stable” to an “unstable”

⁸³ In addition to these two issues of reliability and validity, the issue of scale dimensionality is one important aspect of construct measurement. It is usually assumed that the questions used are meant to measure one particular (and hypothesized) construct (uni-dimensional) and not several ones (multi-dimensional).

⁸⁴ An earlier comment, by Shields and Shields (1998, p. 66), had also raised the problem that the Milani (1975) scale could be consisting of two orthogonal dimensions.

⁸⁵ Although almost all studies have used the nine-item construct, there have been some summation variants from the usual simple average (e.g. Tsui, 2001) to the weighted average calculation. (e.g. Govindarajan and Gupta, 1985; Nouri and Parker, 1998)

⁸⁶ Categorical variable i.e. the RAPM could either be a Budget-Constrained, a Profit-Conscious or a Non-Accounting style.

construct), most of the MCS-related constructs (whether they measure control systems/mechanisms, contingent variables or outcome variables) are regularly reviewed or amended for the following reasons:

- (a) Construct reliability and validity tests – researchers exclude particular items of a previously used construct in response to reliability and validity tests carried on the data (e.g. Van der Stede, 2001; Dunk, 1993a)

- (b) Context and category of respondents – the initial items were meant for respondents in a particular country (e.g. United States) or for particular levels of management (e.g. business unit managers). In this respect, the wording of a particular item is amended or a whole item altogether is removed due to possible ambiguity or irrelevance in this new context. (e.g. Chow et al., 1999; Shields et al., 2000)

- (c) Multi-dimensionality – In the course of the data analysis, researchers may note that the uni-dimensional assumption for a specific construct may be inappropriate e.g. the task uncertainty construct, which has been broken into two dimensions – task difficulty and task variability (Brownell and Dunk, 1991)

The Cronbach alpha is a popular reliability test (Kwok and Sharp, 1998, p. 157). As suggested by Nunnally (1978), a Cronbach alpha score exceeding 0.60 is deemed satisfactory, in terms of construct reliability. Insofar as construct validity is concerned, the earlier tests are generically known as exploratory factor analysis or more precisely principal components analysis (PCA)⁸⁷. These tests attempt to assess validity by reducing a large set of correlated variables to a smaller set of hypothetical characteristics, traits, or factors that underlie the correlations (Kwok and Sharp, 1998, p. 143). Again, as per Nunnally (1978), a cut-off point of above 0.50 is proposed for factor loadings. However, these are not reported consistently in all studies. In fact, there is no clear information on the exact method of factor analysis used. For example, studies such as Brownell (1982), Whitley et al. (1983), Simons (1987a), Mia (1989), Brownell and Merchant (1990), Kren and Kerr (1993), O'Connor (1995), Nouri and Parker (1998), Van der Stede (2000), Lau and Buckland (2000) and Otley and Pollanen (2000) merely report that a “factor analysis” was done without indicating whether this was PCA or other procedures (e.g. maximum likelihood, alpha factoring, image factoring

⁸⁷ Ittner and Larcker (2001, p. 396)

and principal axis factoring)⁸⁸. Also, a number of other recent or usually cited studies do not report any factor analysis method or results e.g. Imoisili (1989), Brownell and Dunk (1991), Lau et. al, (1995, 1997), and Tsui (2001).

The rotation procedures are also prone to criticism. As stated by Newsom (2003), rotation is a way of maximising high loadings and minimising low loadings and the two basic types of rotation are orthogonal and oblique. The author (2003, p. 4) suggests the oblique procedure since it has, in contrast with the orthogonal method, the more realistic assumption that the factors are correlated with one another. Again, there are not many MCS studies who report on the rotation method, let alone the fact the loadings are calculated on a rotated or un-rotated basis. For example, out of the 11 studies surveyed and mentioned above, only 5 stated their method of rotation and only two (Brownell and Merchant, 1990 and Whitley et al, 1983) have used the conceptually correct “oblique rotation” procedure.

More recently, there has been interest into seemingly more robust validity tests, such as confirmatory factor analysis (CFA). In contrast to EFA, CFA tests for the ability of a pre-defined factor model to fit an observed set of data (DeCoster, 2003, p. 5) and it represents the actual testing of hypotheses about structures underlying responses to individual items on an instrument (Froman, 2001, p. 8). Hence, within the context of construct validity, CFA will test the *measurement* model i.e. the validity of all the latent (i.e. unobserved) constructs, which will then be used in testing the hypothesised relationships between the validated constructs (i.e. the *causal* model). Kwok and Sharp (1998, p. 159) consider that CFA is theory-driven whereas EFA is nothing more than a “fishing expedition”. CFA is strongly related to the Structural Equation Modelling (SEM) and is tested via statistical techniques such as LISREL. In fact, the measurement model in LISREL may be considered equivalent to CFA (Kwok and Sharp, 1998).

Jaworski and Young (1992, p. 27) was one the first MCS studies which used the LISREL and the authors do provide some detailed advantages in using LISREL, namely the fact that it (a) accounts for measurement errors and, (b) allows for simultaneous estimates and structural parameters. This therefore provides diagnostic statistics for the model as a whole. Van der Stede (2001) specifically used CFA to seek a valid measure

⁸⁸ Davila (2000) is an exception: he reports the use of both principal factor analysis and maximum likelihood factor analysis.

of “tight budgetary control”. Finally, Poznanski and Bline (1997) and Shields et al. (2000) respectively applied PRELIS and LISREL to estimate the measurement model. However, there is one caveat. LISREL and other similar techniques rely on large sample size i.e. generally more than 200 or relative to number of items in the model. Jaworski and Young (1992), Poznanski and Bline (1997), Shields and al. (2000) did have relatively large sample (more than 250) but this was not the case for Van der Stede (2000, 2001 – 153 observations). In the latter cases, the author applied some small sample-related techniques to maintain the minimum ratio of observations to parameters i.e. 5:1 (Van der Stede, 2000, p. 618 and 2001, p. 130).

In conclusion, and in light of the weaknesses of the usual MCS measurements validity tests, it appears conceptually compelling to adopt a stronger validity test, namely CFA. But, it also true that very few MCS studies have actually used CFA and LISREL – perhaps in relation to the small sample size associated to MCS studies. In contrast, the Cronbach alpha reliability test has been consistently used and does not seem to be challenged. Once the constructs can be concluded to be reliable and valid, then the next step is to assess the relationships between the variables.

2.8.3. Statistical Analysis of “Fit”

2.8.3.1 Defining and Classifying “Fit”

Duncan and Moores (1989, p. 90) consider that one central concept of contingent propositions is fit i.e. the matching of an organisation’s characteristics or mechanisms to its contingencies. And Drazin and Van de Ven (1985) defined three different conceptual approaches to fit, namely selection, interaction and systems. These approaches are summarised in Table 2.4. Early MCS studies were usually selection fits. Fisher (1995) categorised such studies as Level 1 studies, where one contingent factor is correlated with one control mechanism. As stated by Fisher (1995, p. 34), this approach examines whether the presence of a contingent factor is related to a control system/mechanism. However, no attempt was made to evaluate the effect of this correlation on an outcome variable. Examples of such studies are Merchant (1981) and Macintosh and Daft (1987).

Fit	Definitions/Implications	Related statistical test(s) or procedure(s) used.
Selection	Fit is assumed to exist when there is congruence between contingent variable and control system/mechanism	<ul style="list-style-type: none"> • Correlation Analysis • Significance of Regression coefficients
Interaction	Fit is tested by the effect of a bivariate interaction of a contingent variable and a control system/mechanism on a dependent variable, such as performance	Moderated Regression Analysis - Significance of the interaction term(s) coefficient
Systems	This involves a more holistic concept of fit where multiple contingencies, several control systems are simultaneously modelled on several outcome variables	Profile Deviation Analysis Euclidian distance Cluster Analysis

Table 2.4: Conceptual and Analysis Approaches to Fit

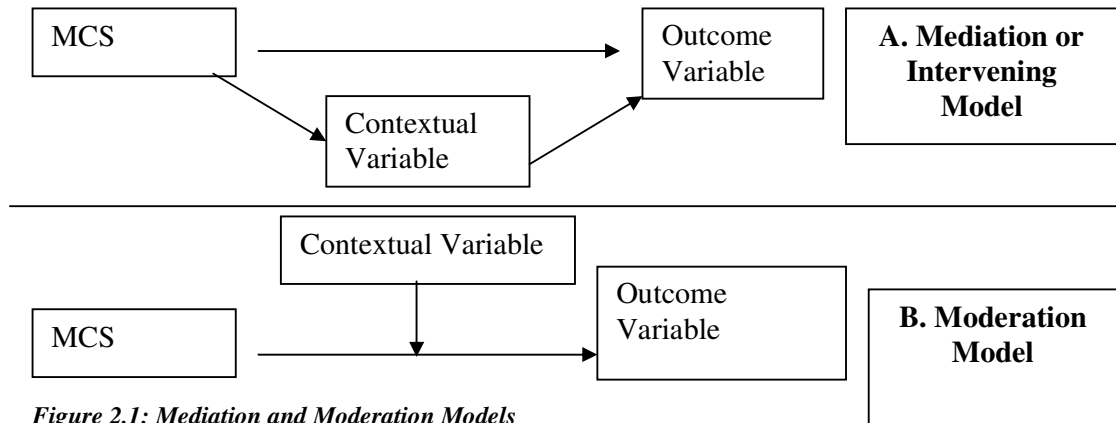
Adapted from Drazin and Van de Ven (1985) and Duncan and Moores (1989)

On the other hand, interaction models are used where the nature or strength of a relationship between MCS and an outcome criterion will depend on the influence of particular aspects of context (Chenhall, 2003, p. 155). Hartmann and Moers (1999, p. 293) contend that interaction fit is the dominant conceptualization of contingency fit in budgetary research. This is also clearly apparent in light of the reviews done in earlier sections on RAPM and Budgetary participation.

More recently, Gerdin and Greve (2004) sought to reclassify the different forms of contingency fits in the particular context of strategy-MAS/MCS research. However, their hierarchical classification has also relevance for the broader MCS area and hence, it is presented in this section. According to Gerdin and Greve (2004, p. 304), a first distinction is between a Cartesian and a configuration approach. Whilst a Cartesian approach assumes that a fit between a contingent variable and a control system is along a continuum that allows for regular and small movements, a configuration approach assumes that there are only few and discrete points at which fit exists. As stated by Gerdin and Greve (2004, p. 305), Cartesian research is characterized by reductionism while configurational research takes a holistic view, and these can respectively be associated to the interaction and systems model, as defined by Drazin and Van de Ven (1985).

The next sub-classification within Cartesian and configuration forms of fit is congruence and contingency approaches. The congruence assumption is similar to the

Drazin and Van de Ven's (1985) selection fit category since the research task explores the nature of the context-structure without examining whether they affect performance (Gerdin and Greve, 2004, p. 305). On the other hand, a contingency approach will consider the effect on some outcome variable. A second sub-classification in the Cartesian subset and within the congruence and contingency approaches is the use of moderation and mediation models. These can best be explained using the diagrams below:



*Figure 2.1: Mediation and Moderation Models
(based on Gerdin and Greve, 2004; Drazin and Van de Ven, 1985)*

There are crucial and different assumptions been made if one applies the moderation or the mediation model. For example, for the mediation model (Fig. 2.1A), it is assumed that the contextual variable is correlated to the MCS and outcome variable whereas this is not the case for a moderation model (Fig. 2.1B). Clearly, the selection of a moderation or mediation model will be based on theoretical arguments and hypotheses made thereon. And within a particular research context or situation, the moderation and mediation models are competing ones.

The final sub-classification refers to the analysis of relationships within studies that adopt a Cartesian and moderation approaches. The existence of a moderating relationship (whether in a congruence or contingency perspective) for a specific group of variables (e.g. one control mechanism, one contingent variable and one outcome variable in the case of a contingency approach⁸⁹) can be analysed in terms of strength or form. Gerdin and Greve (2004, p. 310) argue that this distinction is crucial not only in

⁸⁹ In the case of a congruence example, there could be one control mechanism and contingent variable interacting to cause a second control mechanism – the latter hypothesised here as a dependent variable).

terms of the use of appropriate statistical methods but also in terms of theoretical meaning. Given that these distinctions will be highly relevant in the following sections these are considered in detail below.

2.8.3.2. Moderation Models - Strength vs. Form Relationships

As stated in Hartmann and Moers (1999, p. 310), strength interaction exists when the empirical results indicate that the relationship between a control system and its outcome variable is stronger (i.e. better predicted) when the contingent variable (e.g. task uncertainty) is low rather than when it is high. The technique used is sub-group correlation analysis where the correlation coefficients for the MCS-outcome variable relationship are compared between two groups i.e. the low task uncertainty and high task uncertainty group. Brownell (1983b) and Merchant (1984) are typical illustrations of MCS studies that focused on strength relationships. For example, Brownell (1983b, p. 317) dichotomized leadership style (split at mean values for its two sub-dimensions – consideration and structure) to observe the relationship between participation and performance or job satisfaction. One result of interest was that the correlation between participation and performance was negative (-0.56) in situations of low consideration but positive (0.55) in situations of high consideration. In the case of Merchant (1984, p. 303), two sub-dimensions of budgeting characteristics (sub-labelled as participation) were positively correlated with performance for large departments (split at median size) but there was no significant correlation in the case of small departments. Hence, as stated by Gerdin and Greve (2004, p. 311), the “strength” relationship indicates the predictive ability of the independent variable on the dependent variable over different levels of contingencies⁹⁰. When there are significant differences in value of those correlations, the hypothesis of fit is supported.

On the other hand, form interaction implies investigating whether the slope of the dependent variable on the independent variable differs as a function of the moderator. According to Jaccard et al. (1990, p. 15), form interaction poses an altogether different question (compared to strength interaction) because the slope is not only influenced by the correlation between the dependent variable and the independent variable, but also by

⁹⁰ Also, Jaccard et al. (1990, p. 66) state that in the case of correlation coefficients, the question of interest is whether the two groups differ in the proportion of variance in Y that can be predicted from (or accounted by) X, assuming a linear model.

the standard deviations of the variables. Similarly, Gerdin and Greve (2004, p. 311) state that when researchers argues on the impact of a control system on an outcome variable, they are implicitly referring to a form interaction. In this approach, the multiple regression analysis is the principal statistical technique used to test the existence of a form interaction, generally modelled as the equation 2.1 below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 \times X_2 + \varepsilon \quad [\text{Equation 2.1}]$$

Where: Y = outcome variable (e.g. performance, dysfunctional behaviour)

X₁ = independent variable (e.g. RAPM, SOP, BP)

X₂ = contextual variable (e.g. task uncertainty, locus of control)

X₁ x X₂ = interaction term, representing the moderating effect of X₂ on the relationship between Y and X₁.

β₀, β₁, β₂, β₃ = respective coefficients

and ε = error term

The terminology used to describe this model is sometimes referred to as “Interaction effects in multiple regressions” (Jaccard et al., 1990, p. 7) or Moderated Regression Analysis (MRA, Hartmann and Moers, 1999, 2003). The main expectation in testing the above model would be to generate a significant coefficient for β₃. For example, Mia (1988) used the MRA to study the separate impact of two contingent variables - managerial attitude and motivation – on the relationship between participation and performance. In both cases, the interaction term’s coefficient was significant, thus meaning that the extent to which changes in participation lead to changes in performance differed as the contingent variable (attitude or motivation) fluctuated i.e. the slope of the participation-performance line is changing in response to different levels of the contingent variable. Finally, it is also possible to test the existence of a significant moderating effect by running two separate regressions – one with X₁ and X₂ only and a second one with the interaction term – and looking for statistically different R² (as suggested by Cohen and Cohen, 1983). Both Hartmann and Moers (1999) and Gerdin and Greve (2003) have also raised the issue that results/interpretations from strength and form interactions are sometimes thought to be comparable or used interchangeably. As MRA remains an important statistical technique to test interaction,

the remaining MRA issues presented by Hartmann and Moers (1999, 2003) are reviewed in the next section⁹¹.

2.8.3.3. Issues in using Moderated Regression Analysis (MRA)

Hartmann and Moers (1999) review the application and interpretation of MRA in 28 contingency-based MCS studies, involving RAPM and budgetary participation. Apart from the issue of form vs. strength, four other issues are considered by the authors, namely formulation of hypotheses & effect size, lower-order effects, multiple and higher-order interactions, and (non-) monotonicity.

Hartmann and Moers (1999, p. 298) have identified a number of cases where the conclusions did not match with the original hypothesis and statistical test used. They refer to the example of Govindarajan (1984) who concluded having found a significant moderating effect of environmental uncertainty whilst using a sub-group correlation analysis of low and high effectiveness respondents, instead of using a low and high environmental uncertainty sub-groups. In another case, Merchant (1984) formulated a form interaction hypothesis but then used sub-group correlation analysis, hence testing merely for a strength relationship. This would indicate that there is a need to ensure consistency between hypotheses, statistical test of fit and resulting conclusion. In addition, the wording of such conclusion is of importance as one cannot jump to a particular finding based on the MRA. For example, Hartmann and Moers (1999, 2003) highlight the effect size issue i.e. a significant coefficient of the interaction term only contains information about changes in the relation between variables, and does not contain information about the optimal value of the dependent variable. Nevertheless, previous studies (e.g. Mia, 1989; Dunk, 1993; Brownell and Dunk, 1991, Lau et al, 1995) implicitly linked a significant interaction to a combination of variables generating a maximum value for the dependent variable, using the Johnson-Neyman technique. However, Hartmann and Moers (1999, p. 307) argued that this technique mixes main effects and moderating effects, and are therefore of little value in measuring specifically the interaction effect.

⁹¹ Some of these issues have been also identified by Gerdin and Greve (2004). However, their arguments were only based on an analysis of MCS-Strategy research. Since the current study will focus on other unrelated contingent variables, their detailed findings and issues are not reviewed.

A second and often mentioned issue is the interpretation of the lower order or main effects i.e. the coefficients of the independent variables (e.g. β_1 and β_2 in equation [2.1]). Southwood (1978, p. 1168) argues that these coefficients have no theoretical meaning in an interaction model and other authors (such as Wright, 1976; Smith and Sasaki, 1979) had suggested that a multiplicative term undermines the interpretability of these regression coefficients and that these coefficients may even reverse themselves in sign or relative magnitude when a product term is added. However, Jaccard et al. (1990, p. 26) contend that regression coefficients are subject to meaningful interpretations. Hartmann and Moers (1999, p. 300) did find several authors who wrongly interpreted the main effects (e.g. Brownell, 1982; Chenhall 1986; Mia, 1989) and who decided not to interpret them at all on the grounds that they are not interpretable (e.g. Lau et al, 1995; Brownell, 1985; Dunk, 1990, 1992, 1993b). As per Hartmann and Moers (1999, 2003, p. 806) and Jaccard et al. (1990, p. 26), it is now clear that the coefficients of the main effects can be interpreted provided that the variables are ratio-scaled or that the interval-scaled variables have been centered). More importantly however, one must have made an *a priori* formulation of hypothesis on the main effects coefficients based on sound theoretical arguments. In the absence of such formulations, the issue of interpreting or not the main effects becomes a moot point.

The third problem relates to the use of MRA to model the simultaneous impact of two or more contingent variables, resulting for example in three-way interaction models (e.g. Imoisili, 1989; Brownell and Dunk, 1991; Harrison, 1993; Lau and Buckland, 2000). According to Jaccard et al. (1990, p. 40), the interaction model can be readily extended to cases involving four or more variables. However, given the significant number of variables now modelled as independent variables (e.g. a model involving one control system and two contingent variables would mean a total of 7 independent variables), there is a temptation to remove seemingly non-significant variables in an attempt to improve the degrees of freedom and thus increasing the power of the statistical test. However, Cohen and Cohen (1983, p. 348) and Jaccard (1990, p. 41) advise that such models should include all two way interactions in accordance with statistical principles. Nevertheless, Cohen and Cohen (1983, p. 306) raises some doubts as to the ability of researchers in interpreting the results of three-way or even four-way interaction models. In addition, and as forcefully suggested by Jaccard (1990, p. 41) and Hartmann and Moers (1999, 2003), the focus should be on the theoretical arguments and hypothesis in justifying a more complex interaction model. From the review of past

studies done by Hartmann and Moers (1999), it is clear that the absence of clear hypothesis and arguments for a multiple-way interaction model has contributed to its lack of interpretation. In this respect, and with due regards to the principle of parsimony and in the absence of a clear theoretical arguments, it would be best to apply a Cartesian approach and investigate the effects of contingent variables separately.

One final substantive issue relates to monotonic and non-monotonic interactions. A statistically significant coefficient for the interaction term merely states the existence of an effect. However, Gul et al. (1995, p. 111) state that it is necessary step in all contingency-based fits to find out whether the relationship between the control system and the outcome variable is assumed to be the same at all levels of the contingent variable (monotonic) or not (non-monotonic). This is done by calculating the partial derivative of Y over X_1 over the entire range of X_2 . If the partial derivative is both positive and negative (same direction – negative or positive), then the relationship is non-monotonic (monotonic). However, Hartmann and Moers' (1999) review showed that a significant number of studies did not explicitly test for (non-) monotonicity. It is worth noting that MCS-based contingency theory does not dictate any particular expectations in terms of whether interactions will be monotonic or not but the formulation of hypothesis will certainly indicate the expected type of interaction. For example, the following examples of H_1 hypotheses are quoted below:

Example 1: *“The higher the perceived job difficulty, the more positive is the relationship between the participation in budgeting and motivation”* (Mia, 1989, p. 349)

Example 2: *“High levels of budgetary participation will be associated with a negative relationship between MAS and managerial performance for Chinese Managers but will be associated with a positive relationship for Western Managers”* (Tsui, 2001, p. 131)

Insofar as the first hypothesis is concerned, it is clear that the hypothesised relationship is assumed to be monotonic (over the entire range of job difficulty) whereas the second hypothesis assumes a non-monotonic interaction (culture is the contingent variable). However, Tsui (2001) has presented theoretical arguments in support of such a non-monotonic interaction. Hartmann and Moers (1999, p. 307) suggest the use of subgroup regressions to detect monotonicity but the crux of the issue was that a minority of the surveyed research reported at all on this important distinction.

In conclusion, Hartmann and Moers' (1999, 2003) review can be considered to be a thought-provoking one (Dunk, 2003, p. 793) in terms of questioning particularly the application and interpretation of relatively complex statistical models i.e. MRA. The fact that there have been several and regular criticisms regarding the inconsistencies in contingency-based MCS studies (specifically BP and RAPM) results (e.g. Briers and Hirst, 1990; Chapman, 1997; Shields and Shields, 1998; Hartmann, 2000; Chenhall, 2003) could be related to the issues raised by Hartmann and Moers (1999, 2003). More importantly, the authors may have been successful in reminding current MCS researchers in terms of the assumptions, use and interpretation of MRA.

2.8.4. MCS Research Methods and Analysis: Concluding Remarks

This section has sought to review the critical research method issues pertaining to the study of management control systems within a contingency paradigm. The strong empirical focus that has always characterised MCS studies does not appear to be fading away, despite various calls for, and more recent attempts at, qualitative-based research. At the core of this focus seems to be an implicit and explicit interest and need to generalise research findings. In addition, the questionnaire survey continues to be the main data collection although there have been more notable attempts at using qualitative methods for construct design and/or confirming empirical results. Finally, variable measurement and data analysis techniques have been under recent scrutiny and criticism in light of the various RAPM and BP reviews. There are clear improvements to be made insofar as these aspects are concerned and they will be considered in the current study.

2.9. Analysis of Lessons Learned and Research Opportunities

In his review of MCS literature and contingency theory, Chenhall (2003, p. 160-161) concludes that there is a considerable body of literature which has provided a basis for generalized propositions between MCS elements and context, notwithstanding the various identified theoretical and methodological imperfections and limitations. At the forefront on this analysis is the argument that contingency theory remains a basic and strong framework of analysis. Although there is scope to integrate other theories, as proposed by Chenhall himself (2003, p. 157-159) and Covaleski et al. (2003), the fact is there are still unanswered questions and these are not simply about a new contingent

variable to be added to the already extensive of other contextual factors. Hence, this study will focus on the following six identified and so far unanswered questions:

- (a) Dysfunctional consequences of MCS – Whilst there have been numerous studies on the negative consequences of MCS inspired by authors such as Argyris (1952), Hopwood (1972) and Hirst (1981; 1983), the evidence can be described as piecemeal, in terms of the types and control systems of dysfunctional behaviours studied - with perhaps a rather disproportional empirical attention to budgetary slack. The present study thus seeks to re-assert the relevance of two key general (but important) types of dysfunctional behaviour namely information manipulation and gaming. It is important to point out the use of the term “negative consequences” vs. “positive consequences” is not to be interpreted as an assumed inverse relationship between say, managerial performance, and Jaworski and Young’s (1992) measure of dysfunctional behaviour. The argument is that dysfunctional behaviour is a different dimension of the MCS phenomena and needs to be investigated in its own right, precisely because some authors argue that it can have unexpected benefits for the organization and individuals (Argyris, 1990; Van der Stede, 2000). So far, this dimension has been researched on a narrow basis (e.g. slack, short term orientation etc) and for specific control systems. Finally, whilst there had been some interest in a broader concept of dysfunctional behaviour from an intervening model perspective (i.e. Jaworski and Young, 1992) and in terms of its relationships with uncertainty (Hirst, 1981; 1983), there has not been any recent study looking at its relationship with formal control systems and other contingent variables.
- (b) Standard Operating Procedures – Although Fisher (1995, p. 26) considered SOPs to be only a general control mechanism and not a formal control system, it is not disputed that SOPs are important components of any organization in regulating and controlling managers’ and employees’ behaviour. In addition, despite having a predominant non-financial focus, SOP is an important control sub-system at the management and operational level. The increasing use of technology-based standard procedures and the adoption of quality-driven standards (e.g. ISO 9001) have undoubtedly impacted on the extent and use of SOPs by managers. In this respect, the MCS literature has barely considered the impact of SOP within a contingency paradigm.

- (c) Uncertainty – Chapman (1997) and Hartmann (2000; 2005) have both made strong theoretical arguments on the link between MCS and uncertainty, based on Galbraith's (1973) information deficit perspective. In addition, task uncertainty has been previously singled out as key moderating variable of interest in the study of dysfunctional behaviour (Hirst, 1981, 1983; Hayes and Cron, 1988) This study will contribute towards developing more empirical evidence on the “uncertainty primacy” within the MCS contingency paradigm. In conformity with Chenhall's (2003, p. 156) concern with the level of analysis in contingency-based research, task uncertainty will be the selected dimension to match with the level of respondents i.e. functional managers.
- (d) Superior's Use of Controls – The interactive vs. diagnostic superior's use of controls distinction is one of the key findings of Simons' (1991, 1994) case study-based research, which was then integrated in Simon's (1995; 2000) levers of control framework. However, at the time of this study, there have not yet been many attempts at testing whether this concept can be generalised to a cross-sectional sample and in relation to the traditionally researched control sub-systems (e.g. RAPM and BP). In addition, attempts at measuring the construct for quantitative-based studies (Abernethy and Brownell, 1999 and Van der Stede, 2001) have not been very successful, although more recently published works appear to provide more confirmatory evidence (Widener, 2007; Henri, 2006; Bisbe and Otley, 2004). Nonetheless, an attempt will be made at devising a “better” construct and investigating its interaction effects with major control sub-systems.
- (e) Research Methods Improvements – The last section of this chapter has undeniably raised questions (Hartmann and Moers, 1999, 2003; Gerdin and Greve, 2004) on the use and interpretation of various statistical techniques in MCS research, specifically in the context of construct validity and interpretation of results. This study will first focus on an intervening model which will be tested through the path analysis technique for the above-mentioned contextual variables. The MRA will then be used for the latter part of the study.

2.10. Chapter 2: Concluding Remarks

This chapter has extensively presented and reviewed the theoretical and empirical literature pertaining to the contingency paradigm and management control systems. This has allowed a clear identification of the research gaps that exist in terms of basic relationships between MCS sub-systems and outcome variables, in terms of key contingent variables to be considered. Firstly, theoretical-led suggestions from Chenhall (2003) and Hartmann (2000; 2005) focus on the need to integrate theories within the contingency paradigm and to examine the ‘uncertainty paradox’. The overall dysfunctional implications of MCS have received less attention and the objective of many studies has concentrated on the budgetary slack phenomenon. Finally, there is a clear need to improve the method and statistics to ensure a rigorous analysis of interaction models. However, and before coming to the formulation of detailed hypotheses for this particular study, one additional variable is being proposed. Insofar as its theoretical roots partly lies with institutional theory and the broader interpretive perspective, it would be important to first review the implications of, and evidence from, these schools of thought.

Chapter 3

Institutional Perspectives and Legitimacy

3.0 Introduction

This chapter aims to introduce the fundamentals of institutional theory and how they relate generally to the accounting domain and more specifically to the management control system phenomenon. The case will be then made for integrating an institutional theory-based variable in this study, closed associated to legitimacy.

3.1 Institutional Theory

This theory seeks to explain organisational behaviour, in terms of its activities, structure and relationship with organizational actors, and the factors that generate action (or inaction) in an organization. In the context of analysing future directions in management control systems (MCS) research, Bhimani (1999, p. 425) asserts that this approach:

“...emphasises the ways in which action is structured and order made possible by shared systems of rules that condition the inclinations and capacities of individuals and influence the diffusion of organisational operating procedures.”

Institutionalism is in sharp contrast to the technical and rational thinking that underlies contingency-based relationships between management accounting systems and contingency variables (such as environment, technology, structure). In fact, Robey and Boudreau (1999, p. 177) assert that institutional theory has historically explained why organisational structures and values endure, even in the face of strong reasons and elaborate programs to change them whereas contingency theory assumes a diversity of practices in response to a host of internal and external variables. However, institutional theory has experienced various developments and refinements in the past five decades from old institutionalism⁹² to new institutionalism, and regards institutions as *not* being:

“.....the product of deliberate design and the outcome of purposive action, but rather in terms of the persistence of practices in both their taken-for-granted quality and their reproduction in structures that are partially self-sustaining.”
(Zucker, 1987).

⁹² This focused on the impact of values, norms and attitudes (Selznick, 1957, p. 17) and its political nature (Powell and DiMaggio, 1991, p. 12)

The above statement may not necessarily imply resistance to change but rather relates to the issue as to why many organizational forms and procedures exist without obvious technical or economic value (Meyer and Rowan, 1977). More precisely, researchers, such as Tolbert and Zucker (1983), have shown that technical or functional criteria (i.e. such as the traditional contingent variables) may be important determinants of the early adoption of an innovation but such criteria eventually became weak predictors over time. Institutional theorists have also recognised that organizations may vary in the degree to which they conform to changes in their external environment (Young et al, 2000). In addition, Staw and Epstein (2000, p. 524) note that:

“Although most institutional theorists have argued that late adopters use legitimacy rather than technical rationality as the basis for their actions, most of the evidence to that effect has been indirect, providing more support for the absence of technical or economic determinants of adoption than for institutional processes”.

In this respect, early qualitative and descriptive studies⁹³ illustrated how organizations structure themselves not so much to execute their tasks more efficiently but to gain legitimacy or cultural support (Staw and Epstein, 2000). In a similar vein, Meyer and Rowan (1977) contend that to achieve and sustain this legitimacy, organizations tend to conform to institutional models while resisting attempts at reform, even when organisational efficiency is threatened. According to Hinings and Greenwood (1988, p. 56), organizations operate within an institutionally defined perspective of efficiency and effectiveness. This legitimacy/performance paradox is illustrated by Meyer and Zucker’s (1989) study of numerous industries that have continuously performed below the market rates of return but which are still persisting and operating.

3.2. Institutional Isomorphism: Definitions and Evidence

Based on the initial precepts of institutional theory, new and existing organizations adopt emergent, socially defined elements and legitimated practices in efforts to become increasingly similar to their institutional environments (Dacin, 1997). In this respect, isomorphism refers to the change process that organizations experience towards these institutional norms via mimetic, coercive and normative means⁹⁴. DiMaggio and Powell (1983, p. 149) view isomorphism as a “..constraining process that forces one unit in a population to resemble other units that face the same set of environmental

⁹³ For example, Selznick (1949) and Zald and Denton (1963).

⁹⁴ Discussed in the next section.

conditions...”. They also identify two types of isomorphism, namely competitive and institutional. Competitive isomorphism involves pressures towards similarity resulting from market competition whereas institutional isomorphism focuses on the organisation’s competition for political and institutional legitimacy. (Mizruchi and Fein, 1999)

An institutional isomorphistic view, whereby this legitimacy quest will ensure that organizations pursuing the same objectives will look and act alike, is also shared by Beliveau et al. (1994) and Galbraith (1973). Finally, King et al. (1994) take a more dynamic perspective as to the nature of isomorphism:

“...we note that institutions must themselves be seen as fluid entities, as networks or organizations in action, that are being shaped by individuals, groups, organizations, and interest groups just as surely as they shape those entities.” (1994, p. 160).

In such a framework, Bhimani (1999, p. 426) contends that the structuring of management control systems cannot arise purely from purposive actions or conscious design, but rather may be viewed as reflective of wider social elements whilst being deeply embedded in them.

Turning to empirical research, Staw and Epstein (2000, p. 525) provide evidence that institutional theory has usually involved the influence of social networks on executives in organizations. In particular, organisational practices and forms have been found to migrate between organizations that are linked in social networks, such that executives have the opportunity to share information and perspectives⁹⁵. Other evidence of institutional theory effects is found in an investigation of the incremental gain in legitimacy or support to the organization further to the adoption of environmental rules and procedures. In a cross-sectional study of Minnesota banks, Deephouse (1996) showed that conformity to industry standards⁹⁶ was significantly associated to banks’ legitimacy. This study measured banks’ legitimacy by ratings made by regulatory agencies and press reports, although the levels of legitimacy conferred by these two bodies were not equal⁹⁷.

⁹⁵ Refer, for example, to Davis, 1991; Haunschild, 1993; Palmer et al, 1993 and Haunschild and Miner, 1997).

⁹⁶ More specifically, bank asset allocation strategies were the key strategy variables used to measure conformity (Deephouse, 1996, p. 1029).

⁹⁷ The correlations between the measures of regulatory endorsement and public endorsement were lower than 0.34 (1996, p. 1033).

Similarly, Westphal et al. (1997) demonstrated that isomorphic behaviour by U.S. hospitals, via adoption of Total Quality Management (TQM) techniques, led to increases in legitimacy, as evidenced by higher ratings of national accreditation agencies. In a subsequent study, Staw and Epstein (2000) studied 100 U.S. corporations and hypothesised an institutional relationship between the adoption of popular management techniques⁹⁸ and corporate reputation. A strong causal relationship was found between popular management techniques and reputation whereas no significant effect was found on corporate performance⁹⁹. Their conclusion is a confirmation of the institutional assumption that firms do not necessarily choose the best or most efficient techniques but, instead, seek external legitimacy by adopting widely accepted and approved practices.

Although the above descriptions seem to consider the organization as a “monolith” which is subject to institutional pressures, it has to be noted that eventually individuals are the real actors of the same institutional process. Peters and Pierre (1998, p. 565) explain that,

“The behaviour of individuals in politics is based in part on individual volition, but is also deeply influenced by the values of structures within which the individuals are ‘embedded’...Individuals and their values are altered by the institutions within which they are embedded and with which they come into contact”.

3.2.1 Isomorphic Mechanisms.

DiMaggio and Powell (1983) identified three different mechanisms or means through which institutional isomorphism operates, namely coercive, mimetic and normative isomorphism. First, coercive isomorphism originates from formal and informal pressures exerted on an entity by other organizations upon which it is dependent and by cultural expectations of the society within which the entity operates. For example, the laws and regulations require a common behaviour from companies in general but also in specific, more regulated, industries or areas of activity (e.g. water and electricity utilities).

A further illustration would be related to the strict and worker-oriented labour regulation in some countries that restricts companies’ ability to establish performance-

⁹⁸ Namely Total Quality, Self-Managed Teams and Employee Empowerment (2000, p. 531).

⁹⁹ Measured using financial measures i.e. Return on Assets, Return on Equity and Return on Sales

related pay and rewards, thus preventing the establishment of objective productivity/reward systems in these organizations. However, as stated by DiMaggio and Powell (1983), coercive isomorphism is not only caused by legislation. A holding company may enforce the adoption of an accounting policy, an organization structure and/or a management accounting system on its subsidiaries. Similar instances may exist in the case of a franchisee/franchiser arrangement. Irrespective of the source of these pressures, the common denominator of coercive isomorphism is that the organization has little choice but to conform and behave in a required way, lest there be substantial formal and informal sanctions (e.g. legal fines, loss of business, or cancellation of franchise).

Secondly, organisational change can arise from mimetic isomorphism. This may be more gradual than coercive isomorphism as Haverman (1993) expects that organizations change over time to become more similar to other organizations in their environments. This is usually in response to uncertainties in the environment¹⁰⁰ and/or to seek legitimacy/support:

“...they [organizations] model themselves after other organizations within their industry that appear to be most successful in conforming to prevailing norms and expectations (Alexander and Fennell, 1986). Specifically, strong competitive pressures create uncertainty because of the need for organizations to anticipate and react to the strategic initiatives of their competitors (Alexander, 1991).”

This argument is reminiscent of the contingency/MCS paradigm but only in context, not in perspective. In contrast to a contingency proposition, a company's' behaviour will not be dependent on its perceived environmental uncertainty but on the behaviour of other organizations in the same industry. However, mimetic isomorphism may not necessarily be limited to specific industries. For example, the recent and significant number of global corporate mergers, which are occurring across industries and countries, may be due to mimetic isomorphism on any of the following grounds (i) increasing competition (hence, increasing uncertainty), (ii) the belief that “bigger is always better” (myth) and (iii) the expectation that the new structure will be viewed as more efficient (legitimacy). A more pragmatic argument to support mimetic isomorphism would be that organizations do not need to seek and spend on new solutions, but rather imitate actions of other organizations (Haverman, 1993).

¹⁰⁰ Arising from poorly understood technologies, ambiguous goals and other uncertainties. (DiMaggio and Powell, 1983).

Similar mimetic-based arguments and findings have been argued and reported by Galaskiewicz and Wasserman (1989), Fligstein (1991)¹⁰¹ and Young et al. (2000)¹⁰². Kaplan (1984) also reported the mimetic behaviour of organizations when he applied internal accounting practices that were originally developed in the 1930s for firms manufacturing stable products with a direct labour content. In their study of management practices, Staw and Epstein (2000, p. 542) interpret mimetic behaviours as “fashion cycles” that are originally adopted or considered because of their perceived benefits, but contend that the effect of social approval or legitimacy enhances the contagion effects (mimetic isomorphism).

Finally, normative isomorphism arises from pressure on organisational actors (individuals), via their membership and collective responsibilities to a profession. Hence, DiMaggio and Powell (1983) suggest that professional bodies are also subject to the same coercive and mimetic isomorphism as any other organization, although normative pressures are formally less compelling by nature than the coercive ones. The professionalisation of specific occupations or activities (as later explained in Section 3.4) creates much similarity in practices and mindsets of these members, and is observable across industries. Grandlund and Lukka (1998, p. 163) note that the recent trends of professionalisation in management accounting have, for instance, included the promotion of the ideas of cost management and non-financial measures.

DiMaggio and Powell (1983) identify two sources of professionalisation, namely university education and professional networks. Whilst the former impounds formal structures and processes, the latter moulds perceptions about professional behaviour (Grandlund and Lukka, 1998, p. 164). Thus,

“Such mechanisms create a pool of almost interchangeable individuals who occupy similar positions across a range of organizations and possess a similarity of orientation and disposition that may override variations in tradition and control...” (DiMaggio and Powell, 1983, p. 152)

Grandlund and Lukka (1998) illustrate this normative process by referring to the change of orientation of management accountants in Finland, “..moving from the inner processes to the outside environment of firms and being realised in an intensified

¹⁰¹ The diffusion of diversification strategies.

¹⁰² The study was based on a survey of hospitals’ evaluation process for CEOs (business oriented vs. charity oriented) in response to increased competition in the industry.

cooperation between accountants and sales people in a partly decentralised management accounting function” (1998, p. 164).

3.3. Institutional Theory: Issues

Two important issues raised in the literature about the efficacy of institutional theory are: (i) positivistic orientation of the theory and (ii), the distinctions between the dimensions of isomorphic behaviour. First, the institutional argument has been extensively researched and empirical tests have been supportive in confirming the existence of isomorphic behaviour. This research adopts a positivistic paradigm that attaches due importance to social linkages between an organization, its actors and the environment. For example, it is expected that a management control system within an organization would be dependent upon coercive, mimetic and normative pressures rather than being solely contingent upon technical structures and seemingly “independent” factors (such as level of technology, competition, organization structure and strategy).

However, Bowring (2000, p. 268), while analysing the development of the theory over the past 50 years¹⁰³, argues that the confinement of institutional theory within the positivistic paradigm may have limited the insights that could have been generated from this body of work. The consequences of such a narrow view have been the notion of passivity and fatalism (Agger, 1991; Rowan, 1982), which appeared to characterise all institutional-related research in the last 20 years or so. The organization is usually viewed as being totally dependent on pressures from the law, competitors, clients, professions, etc, whereas it would be safe to argue that organizations (in terms of their practices, procedures, performance and experiences) can also place pressure on, and bring changes to, the environment. In this respect, Bowring (2000, p. 269) advocates an interaction perspective rather than a reaction one with the environment, especially in light of the currently fast changing institutional environment faced by corporations nowadays. In conclusion, the institutionalisation process described would perhaps be better described to the commonly known physical process of osmosis, which denotes a

¹⁰³ Early proponents of the institutional approach were Selznick (1949), Schutz (1962) and Berger and Luckmann (1967).

“..process of interchange or absorption or a process of diffusion¹⁰⁴” of practices between organizations and their environment, to achieve conformity and legitimacy.

Within this context of passivity, Kondra and Hinings (1998) argue that there has been an “over-institutionalized” conception of isomorphism, thus neglecting the very basic fact that variation and diversity of practices do exist at the outset¹⁰⁵. Thus, research into the transformation and change of institutional norms has yet to be explained by institutional theory (Kondra and Hinings, 1998, p.750). In fact, the authors propose in their study a typology of organizations based on an intuitive relationship between institutional fit¹⁰⁶ and performance. The second issue relates to the elaborate distinctions between coercive, mimetic and normative isomorphism. These distinctions may be purely theoretical and even DiMaggio and Powell (1983) conceded that their separate effects towards institutional isomorphism may be difficult to distinguish empirically. Mizruchi and Fein (1999), having thoroughly examined related empirical research over the period 1984-1995, noted a disproportionate focus¹⁰⁷ on mimetic isomorphism at the expense of coercive and normative isomorphism to explain organisational behaviour, despite strong arguments to support all three of them (e.g. Fligstein, 1985; Galaskiewicz and Wasserman, 1989).

In addition, even if their respective effects can be validly and reliably measured, this will not preclude these different mechanisms from being negated or enhanced by each other. For example, based on the previous illustration of global corporate mergers (mimetic isomorphism), there has been concomitant stronger oversight of such mergers by governments and trans-national bodies (e.g. European Union) suggestive of a possible coercive mechanism moderating a mimetic one. On the other hand, normative isomorphism, which may involve the adoption and pressurisation of specific management accounting practices amongst professionals, could accelerate the setting up of related procedures, structures and systems throughout the companies, hence being symptomatic of “quicker” mimetic isomorphism.

¹⁰⁴ Macquarie’s Encyclopaedic Dictionary (1990, p. 669)

¹⁰⁵ Ledford et al. (1989) and Buckho (1994) previously mentioned such caveat.

¹⁰⁶ Defined as “..the degree of compliance by an organization within the organizational form of structures, routines and systems prescribed by institutional norms” (1998, p. 750).

¹⁰⁷ 60% of studies have to be found to be focusing on mimetic isomorphism (1999, p. 666).

In conclusion, institutional theory provides an additional and relevant perspective within the contingency paradigm for a study of the use of management control systems in organizations.

3.4. Myths and Rituals

A concept that is also very much related to this interpretive framework is the influence of myths and rituals, whereby certain practices and policies within organizations are enforced without rationale and presented in non-questionable fashion, even if these practices or policies may not be the most efficient or the most adapted way to run the organization. For example, a common myth is that private sector organizations are run more efficiently and effectively than government departments or state-run entities, hence spurring frequent and wholesale calls for more “privatised” structures and practices in such organizations.

March and Olsen (1989 and 1995) are credited as being the proponents of such “norms and rules” and this strand of institutional theory is referred to as the normative institutional theory. The authors argue that actions are determined by a “logic of appropriateness” that is shaped by institutional values, in contrast with the “logic of consequentiality” characteristic of rational choices and behaviour (cf. from Peters and Pierre, 1998, p. 568)

It is also viewed that the professionalisation¹⁰⁸ of various occupations and functions within organizations reinforces the influence of myth and rituals on practices, policies and structures. Therefore, a “qualified” accountant is deemed to be competent and effective, not because he/she has actually demonstrated it, but because this occupation has been screened by “...social rules of licensing, certifying and schooling” (Meyer and Rowan, 1977, p. 344). Previous accounting researchers have highlighted the role and processes of to be mere rituals (e.g. Gambling, 1987).

¹⁰⁸ As defined by DiMaggio and Powell (1983), “the collective struggle of members of an occupation to define the conditions and methods of their work, to control the production of producers and to establish a cognitive base and legitimation for their occupational autonomy.

3.5. Legitimacy and Legitimation

Legitimacy and legitimation is central to the new institutional framework, an “anchor-point concept” as termed by Deephouse (1996, p. 1033). Scott (1991, p. 169) asserts that legitimacy has been largely viewed as related to societal evaluations of organizational goals. DiMaggio and Powell (1983) and Meyer and Rowan (1977) argued that organizations conform to institutional rules and requirements not necessarily for reasons of efficiency but rather for increasing their legitimacy, resources and hence their survival. Indeed, “...*even among market driven organizations, productive efficiency may have relatively little to do with survival*” (Powell and DiMaggio, 1991, p. 187).

Greenwood and Hinings (1996, p. 1022-1023) set out the characteristics of new institutionalism with an “...*emphasis on legitimacy, the embedded-ness of organisational fields, and the centrality of classification, routines, scripts, and schema*”. Indeed, there needs to be a rationale for any organisational practice, structure or form. As argued by Robey and Budreau (1999, p. 177), organizations acquire institutional properties by drawing from abstract ideals (rationale) in a society, such as competition, progress or efficiency.

Hence, if the stated objective for adopting or retaining a procedure or structure is to achieve one or more of the previously mentioned ideals, then legitimacy is achieved i.e. a certain degree of “cultural support” (Scott, 1991, p. 170) for the organization has occurred. In other words, the “institutional” environment both supports and produces normative pressures on an organization to perform in a legitimate fashion (Zucker, 1987). For example, the so-called “organisational culture”¹⁰⁹ would encompass all those practices and structures that have “stood the test of time”¹¹⁰ and which are expected to result in better performance or efficiency. Obviously, the organisational actors are directly affected by these institutional rules. As an illustration to this, Tolbert (1985) studied the formal structure of a sample of law firms and found formal mechanisms aimed at ensuring the socialisation of new members, with a view to maintaining homogeneity of members’ backgrounds and experiences.

¹⁰⁹ This term refers to the shared beliefs and attitudes about the appropriate assignment and execution of organisational tasks that are reflected in patterns of behaviour (Tolbert, 1985).

¹¹⁰ A practice that is deemed to have “stood the test of time” may be considered to be a legitimated one.

Ruef and Scott (1998) examine in detail the concept of organizational legitimacy. According to the authors (1998, p. 3), organizational legitimacy is determined by those observers of the organization who assess its conformity to a specific standard or model. Whilst the focus of the literature seems to be more on external constituencies (e.g. government, professional associations), there are also internal participants (e.g. workers, managers) who also make legitimacy evaluations that can “...*affect their own levels of involvement and motivation*” (Elsbach, 1994). In addition, and interestingly for this current study, Ruef and Scott (1998) do question the “location” of the legitimisation processes in the organization i.e. at what level or unit. They identify three units/levels, namely (a) entire organizational population, (b) individual organizations, and (c) subunits and specialized aspects or organizations (1998, p. 3). One may therefore expect heads of functional units in an organization to be part of the legitimation process.

3.6. Accounting and Institutionalism

Despite the frequent mention of the accountancy profession and its activities as an illustration of a source of normative isomorphism in organizations (e.g. DiMaggio and Powell, 1983, p. 147), theoretical and empirical research into the institutional aspects of accounting, inclusive of management control systems, has been slow to develop but is becoming increasingly predominant (Baxter and Chua, 2003; Luft and Shields, 2003). In the early 1980s, authors such as Meyer (1983), Cooper (1981, 1983), and Hopper and Powell (1985) already questioned the technical (i.e. contingent) primacy of management accounting research and argue for,

“..a symbolic domain that is created by accounting fictions, a domain that is important for creating the type of legitimate and seemingly coherent entities that are demanded by the agencies of the modern world” (cf. Hopwood, 1983, p. 289)

Indeed, both authors suggest (cf. from Hopwood, 1983, p. 295) the need for going beyond the rational domain and to consider broader social and ideological factors that are implicated in the accounting processes. The links between general accounting practice - as a symbolic representation of rationality - and legitimacy have been diversely addressed and/or mentioned in the literature, such as Feldman and March (1981), Burchell et al. (1980), Richardson, (1987), Gambling (1977). Hence, the

use/existence of internal accounting/financial practices in organizations is seen to have legitimacy-seeking properties, in:

“...creating a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions”. (Suchman, 1995, p. 574)

Furthermore, Suchman (1995) seeks to clarify the meanings of legitimacy and suggest three types of organizational legitimacy, namely (a) pragmatic legitimacy, which rests on the self-interested calculations of an organization's most immediate audiences, often involving a critical resource (financial) dependence between the organization and audience, (b) moral legitimacy, which rests not on judgements about whether a given activity (e.g. financial planning) benefits the evaluator, but rather on judgements about whether the activity is “the right thing to do” whilst focusing on the existence of ‘sound’ practices as evidence of doing ‘good’ , and (c) cognitive legitimacy, which goes beyond evaluation and self-interest, and involves an affirmative backing, or a mere acceptance, of the organization based on some taken-for-granted cultural account (1995, p. 578-582).

The use of institutional theory was more formally introduced in a study of health care organizations (Covaleski et al, 1993). The research investigated the implementation of case-mix accounting systems based on diagnostic-related groups (DRG), as means to control hospital costs. The authors contend (1993, p. 66) that DRGs and case-mix accounting systems will be treated as ceremonial systems for creating and affirming orders to satisfy external funding agencies. Based on an analysis of the origins and influences of the case-mix accounting systems and DRG in the hospital industry, Covaleski et al. (1993, p. 76) conclude that one can more accurately characterize the above-mentioned practices as social in nature, as a mechanism to express and demonstrate a conformity with institutionalised rules and expectations.

Scapens (1994) provided some initial thoughts on how the institutional framework could apply to management accounting. He considered (1994, p. 315) that accounting provides some of the routines which both maintain organizational coherence and give external legitimacy rather than providing a basis for rational economic choice. Although the focus of his discussion is on external legitimacy, one may argue that an internal legitimacy could also exist vis-à-vis the internal players within the organization (e.g. employees and managers).

Carruthers (1995) attempted to examine the links between accounting and new institutionalism. He reviewed the arguments and implications that accounting practices are rationalised elements (1995, p. 315) that are incorporated to help maintain appearances rather than implemented as a result of a technical and rational process. However, quoting from Meyer and Rowan (1991), Carruthers (1995, p. 316) does acknowledge one important element: the existence of rationalized structures is dependent on the level of uncertainty surrounding outputs, technologies and criteria. Hence, in a situation of easily measurable outputs, well defined production technologies and unambiguous success criteria, technical efficiency will matter. This statement is highly reminiscent of the contingency paradigm discussed in the previous chapter. In a separate analysis, Carruthers (1995) also considers the extent to which observers and players are convinced by rational appearances or are aware of the decoupling between the structures (accounting control) and the decisions relating to them. He refers to O'Barr and Conley's (1992) study which argued that "experts see ambiguity where others see precision" (cf. Carruthers, 1995, p. 319). Hence, non-specialists (such as marketing or production managers) are more likely to be believing that MCS comprise of a rational and neutral set of operating procedures, budgetary participation mechanisms and performance evaluation criteria. On the other hand, Fligstein (1991) argues that "non-accounting" managers, after having spent time and experience in the organization, tend to adopt a more financial outlook on the organization's performance over the course of their careers whilst financial experts (accountants) are the ones most wedded to rational appearances (in Carruthers, 1995, p. 319). Although both view points seem to rely heavily on anecdotal evidence, the statements do reinforce the argument that managers may have very diverse perceptions (from rational to institutional) of the management control systems. Specifically, the degree of legitimation that managers may perceive to be "operating" on the accounting and control systems could become a relevant variable. Carruthers (1995) concluded by stating that the extent of investigation on accounting as a rationalised myth had not been significant but over the last ten years or so, there has been a growing interest within the management accounting area to explore the institutional influence on a theoretical and empirical level. Some of the relevant research (post 1995) is now reviewed below.

Firth (1996) applied some the institutional mechanisms and concepts to explain the use of particular management accounting practices. He investigated the adoption of a list of

managerial accounting practices and procedures (e.g. costing, overhead allocation, budget, variance, investment appraisal) by Chinese entities and their foreign partners, usually operating through a joint-venture enterprise. Firth (1996) hypothesised that an isomorphic and mimetic process would occur whereby Chinese enterprises having joint-ventures with foreign companies would have made changes to adapt to “capitalist-style” management accounting practices. Compared to a sample of other Chinese enterprises which were not involved in any foreign partnerships, the author did find significant evidence of adoption and convergence in the use of management accounting practices by the first category of Chinese enterprises.

Abernethy and Chua (1996) investigated the changes to the MCS in response to strategic decisions but considered the effects and implications from an institutional theory viewpoint. Based on an extensive qualitative study of a large public teaching hospital in Australia, they identified the various forms of isomorphism at play over the “various stages of the life” of the organization which eventually played a part in re-shaping the governance and management of the hospital. New “professional management” practices were legitimised, including the new costing accountability and control systems.

Hoque and Alam (1999) presented the influence of Total Quality Management (TQM) adoption on an organization’s management accounting systems (MAS). Based on a qualitative study of a New Zealand company, they observed that there were strong pressures for the organization to adopt TQM and thus to increase external legitimacy, and gain acceptance from government bodies, professional associations and quality standards authorities. They also found that the MAS was eventually adapted to reflect the new TQM focus (1999, p. 206).

Whilst the previous articles demonstrate the increasing interest in institutional theory in management accounting and control research, there have also been proposals to integrate the institutional within the mainstream contingency paradigm. Chenhall (2003, p. 160) argues that whilst the institutional paradigm have different theoretical and philosophical bases, some researchers have used contingency-based ideas to develop convergence between these approaches. He adds (2003, p. 160):

“A contingency-based approach attempts to map variables and demonstrate potential relationships between these variables, which may include power and politics, and indicate potential links with outcomes”.

Covaleski et al. (2003) also consider the theoretical aspects when reviewing budgeting research. They identify three theoretical perspectives applicable to budgeting research, namely economics, psychology and sociology. According to them (2003, p. 7), the two main streams of research within the sociology perspective are the contingency and institutional theories. The authors highlight one important assumption that distinguishes between the two theories, and which is specifically relevant to this study. They state (2003, p. 30):

“An important assumption of contingency theory is that these employees are not strategic in intentionally violating organization policies and goals. In contrast, political models of organizations such as institutional theory assumed that these ‘bounded rational’ employees are likely to engage in strategic (self-interested) behaviour. Institutional theory also assumes that this strategic behaviour often takes the form of attaching meaning to the budgeting process beyond the formal role of coordination and control that it has been given in the contingency theory approach”

This appears to be an important point to this study given the closeness between “intentionally violating organizational policies and goals”, “strategic behaviour” and what has been coined as “dysfunctional behaviour”. At the same time, it does give credence to the argument that a manager adopting “an institutional” viewpoint may be more amenable to consider forms of dysfunctional behaviour as acceptable. On the other hand, as reported in Covaleski et al. (2003), an opposite reaction can be interpreted from Czarniawska’s (1997) suggestion on the role of budgeting:

“...institutional theory depicts budgeting as having a critical role in the expression of symbolic preference in a bargaining process rather than a formal structural control mechanism in a decision-making process, as a means of conversation rather than a means of control, and as an expression of values rather than an instrument for action” (in Covaleski et al., 2003, p. 32).

If managers do have an “institutional” rationale when confronted with the MCS (such as the budgetary process), then they may conclude that MCS mechanisms and outputs are ultimately not relevant in the organisation’s assessment of their functional performance. In such a context, the managers’ willingness to engage in dysfunctional behaviour may be less than in the case of a manager having a more “rational” outlook to the MCS. Hence, the influence of “institutional theory” on the link between MCS and an outcome variable (be it managerial performance or dysfunctional behaviour) may be enhancing

or decreasing the relationship. In attempting to build more specific links to the context of management control systems, one now needs to bring the discussion to a particular concept within the institutional framework i.e. the influence of legitimacy or legitimation on actors when they interact with the management control system.

3.7. Accounting and Legitimation

One of the early and specific discussions on accounting and legitimation was by Richardson (1987). He argued that there are different perspectives of legitimation when linked to accounting. For examples, he (1987, p. 341) refers to Cooper's (1981) view that accounting sustains and legitimises the current social, economic and political arrangements, whilst there is Tinker et al.'s (1982) characterization of accounting as an ideology and Tiessen and Waterhouse's (1983) view that accounting has a constitutional role in organizations. The three main perspectives are more formally known as "structural-functionalist", "social constructionist" and "hegemonic". Richardson (1987, p. 342) contends that the process of legitimation can be generally seen as an attempt to establish a semiotic relation between action and values. The above stated perspectives on legitimation are however different in terms of how they map the link between action and values and how these latter terms are defined.

More importantly, Richardson (1987, p. 343) goes on to define the conditions for the process of legitimation:

"The legitimation for action is necessary for that action to occur where: an actor is seen to have a choice in the actions he or she may take; the resource requirements or consequences of action for others are non trivial; other actors' participation cannot be coerced; and, their consent is necessary for the actor to undertake his or her planned action or avoid penalties for past actions. These conditions would seem to be met in the relationship between managers and subordinates and between organizations and the institutional environment"

In applying these conditions in the context of this study, one can argue for the existence of an influence (the legitimation for action) on how managers would perceive the effect of MCS on the extent to which they would engage in dysfunctional behaviour.

A second author that often refers to accounting and control systems within discussions on legitimation is Brunsson (1990). In this paper, he formally considered the issue

within the broader realm of organizational decision making (making choices) and viewed accounting as an important source of information for decision makers (i.e. the choosers). He argued that organizational decisions and certain practices can be viewed as legitimating devices. For example, organizations can be advised to continue emphasizing budgeting procedures, even if these have not produced the right choices, if responsibility and legitimacy are more important (1990, p. 58). However his examples and observations were mostly based in government departments, parliaments and councils processes, thereby limiting its scope to commercial organizations where decisions would not normally be their main “outputs”.

One observation that could be extended from this line of thinking would be that managers and decision-makers in organizations may not have identical perceptions of whether the decisions (or even actions) were merely legitimating devices or in part based on rational comparison of alternatives. Hence, the influence of the legitimation process would be dependent on the extent to which actors perceive this process to be in operation i.e. Are managers aware of the disconnection between decisions and actions? It is the manager’s recognition of the legitimation process (in part or completely) that again could be of interest in the link between management control systems and managers’ extent of dysfunctional behaviour?

3.8. Discussion and Conclusion

This chapter has considered the tenets and implications of institutional theory first in a broader organizational context and second, in the context of management accounting. There is a growing and relatively recent consensus for the ‘unlocking’ of institutional arguments when considering the role of management accounting within an organization (e.g. Scapens, 1994; Carruthers, 1995; Chenhall, 2003; Covaleski et al. 2003). Also, some of their work have been influenced and led by the theoretical and empirical developments within the organizational change literature, and how it relates in turn to accounting changes and particularly the impact of “institutional” factors and theories that drive changes in management accounting practices and management control systems (e.g. Covaleski et al. 1996; Abernethy and Chua, 1996; Nor-Aziah and Scapens, 2007; Dambrin et al., 2007). Although some authors (Scapens, 1994 and Carruthers, 1995) appeared to place institutional theory at one extreme of the spectrum - in comparison with the mainstream management accounting theories (e.g. contingency,

agency) - the more recent discussion and arguments do seem to favour an integrative approach or at the very least the inclusion of institutional and interpretive variables within the mainstream paradigms.

Furthermore, whilst “institutional theory” provides a set of basic and general explanations of an organization’s behaviour, one needs more specific concepts and constructs to enable a more focused and empirically valid research. Concepts such as isomorphism or legitimacy are important ones as they represent critical aspects of the theory and as already noted in some empirical research, appropriate proxies were devised to assess the existence and extent of these aspects (e.g. Ruef and Scott, 1998; Deephouse, 1996). Legitimacy and legitimation are clearly key concepts that have attracted attention. Although it has been mostly viewed from an organizational unit viewpoint, and therefore are at a somehow abstract level, there is scope to consider the effects of legitimacy and the legitimation process at subunit level. The fact that most organizations have retained the functional nature of subunits (e.g. marketing, operations, sales, R&D etc) also allows an investigation of the impact of legitimacy on MCS by comparing these different functions.

Hence, the recent literature appears to validate the possibility of integrating an institutional variable (namely the legitimating nature of controls) within a contingency paradigm. The arguments and detailed hypothesis in that respect will be presented in the next chapter along with the original contingency variables.

Chapter 4

Hypothesis Development and Empirical Schema

4.0 Introduction

The aim of this chapter is to present the formal hypotheses relating to the relationships between MCS, dysfunctional behaviour and the contextual variables identified from the literature. It thus addresses the three research questions and objectives formulated in Chapter 1 (Section 1.5 and 1.6) of this thesis by considering separately the direct, intervening and moderating effects arising from the use of MCS in companies. In a bid to capture different aspects of management control systems, the sub-control systems of standard operation procedures (SOP), budgetary participation (BP) and reliance on accounting performance measure have been selected to “reflect” the typical MCS of a private sector organization.

More specifically, this chapter will first argue for the various linkages between the extent/nature of the above-mentioned three sub-control systems and the extent of dysfunctional behaviour by middle level managers. It is argued that such relationship is moderated by contextual factors specific to the work functions and environment in which the middle managers and their superiors operate. The design of each of the above-mentioned sub-control systems will be proposed as an independent variable of interest, which is expected to impact on the managers’ two types of dysfunctional behaviour, namely information manipulation and gaming. The indirect (or intervening) and moderating effects involving a contextual variable with each sub-control system will then be considered. As elaborated in Chapter 2 (Section 2.8.3 and Figure 2.1), contingency-based studies have involved various forms of fit and models. In this study, two types of models are considered: one known as a mediating (or intervening) model based on direct/indirect relationships and the second one known as a moderating model, based on the interaction effects of two variables (an independent and a moderating variable) on the outcome variable. In both cases, however, appropriate hypotheses on simple direct effects have to be formulated. These will be elaborated in the following sections.

4.1 Direct Effects: MCS to Dysfunctional Behaviour

4.1.1 SOP to Dysfunctional Behaviour Hypothesis

As stated earlier, SOPs enact a number of rules that regulate the capacity or ability of managers to act in a flexible way. The evidence on their consequences remains scant, as previous research has focused on situational variables only such as task characteristics, departmental interdependence and national culture e.g. Rockness and Shields (1984), Macintosh and Daft (1987), and Chow et al. (1999). Chow et al. (1996) did find some evidence that control systems (including procedural controls) enhanced dysfunctional behaviours (short term emphasis and manipulation of measures) in two countries (US and Japan) but it does not strictly report on the individual impact of the procedural controls. Fisher (1995, p. 40) notes that a procedural system enhances control over tasks it supports by reducing the discretion of the person(s) performing the task. SOPs typically provide for a paper trail, authorisation limits and compulsory counterchecks that enhance the visibility and transparency of activities carried out, or actions/decisions taken, by functional/middle-level managers.

While dysfunctional practices entail “getting around” or by-passing formal rules and regulations of the organization, it is argued that SOPs are a device - at the middle managers operating level - that creates sufficient precision and speed of action by administrative management to block (or at least restrict) dysfunctional practices at that level. In addition, if one relies on Simons’ (1995; 2000) conceptualisations, one can view SOPs as an example of a boundary system that communicates the actions that employees should avoid, whilst allowing them to innovate and achieve with certain pre-defined areas (Widener, 2007, p. 760). Hence, the higher the precision in applying controls on operating tasks, the lower is likely to be the operating managers’ extent of dysfunctional practices, resulting in the following directional hypothesis:

H1: There is an inverse relationship between the level of standard operating procedures and the managers’ extent of dysfunctional behaviour (gaming).

A caveat to the above hypothesis however needs to be acknowledged and this can be associated to initial observations by Hirst (1983) in that he expected a non-linear (curvilinear) relationship between his measure of DB (tension) and the control system (RAPM). This was modelled by adding a quadratic term (1983, p. 599) to the regression equation. In other words, there is a general expectation that gaming can be

minimised up to a point which is deemed 'acceptable' by managers. Past this level of SOPs, there may be little benefit to additional procedures, possibly resulting in the 're-activation of defensive routines' in response to a perceived threat - as put forward by Argyris (1990). At the same time though, Hirst (1983) did not find empirical evidence in support of this curvilinear relationship in the case of RAPM (1983, p. 602).

As will be further explained in Chapter 5 - the extent and existence of SOPs will be related to the following activities (adapted from Chow et al., 1999), (i) purchase of capital equipment, (ii) hiring and firing of personnel, (iii) sourcing of inputs (raw materials, consumables), (iv) operating procedures and schedules and (v) making tradeoffs within your unit's current period budget. However, SOPs applying to these activities will be expected to be aimed at restricting the dysfunctional behaviours relating to the setting of boundaries on actions and activities (i.e. gaming). On the other hand, and given the nature of SOPs, there are fewer possibilities of information manipulations arising from the SOPs. Hence, the following hypothesis is formulated:

H2: There is no significant relationship between the level of standard operating procedures and the managers' extent of dysfunctional behaviour (information manipulation).

4.1.2. BP - Dysfunctional Behaviour Hypothesis

There is an ongoing debate regarding the positive and negative consequences of budgets in organizations. On one hand, initial studies have found direct and positive links between participation and motivation or performance (Searfoss, 1976; Kenis, 1979; Merchant, 1981; Brownell, 1982a; Brownell and McInnes, 1986; Mia, 1987; Nouri and Parker, 1998). However, others empirical studies report on the absence of relationships between BP and performance/motivation (Shields and Young, 1993; Kren, 1990; Steers, 1979). On the other hand, and spurred by the agency paradigm (Merchant, 1985a) and previous case study evidence (Argyris, 1952; 1953), one major area of research in budgeting practices has focused on the link between the extent of the subordinate's participation in drafting budgets and budgetary slack i.e. formulating a budget that makes it easier to attain by understating revenues or overstating costs (e.g. Lowe and Shaw, 1968; Onsi, 1973; Govindarajan, 1986; Dunk, 1995). Lukka (1988, p. 283) extended the concept of slack to that of 'budgetary bias', which then included the element of upward bias i.e. the deliberate overstatement of expected performance in the budget. He further contended that a higher degree of participation provided the

opportunity to create bias, hence diminishing the superior's power in controlling the subordinate (1988, p. 287) and which was documented in a later case study by Walker and Johnson (1999).

Based on a review of empirical studies, Dunk and Nouri (1998, p. 74) concluded that participation appears to be a necessary, but not a sufficient condition, for slack creation and that the relation between participation and slack may not be a simple and direct one. Indeed, there were also contrary arguments that participation may in fact reduce slack (Onsi, 1973; Camman, 1976; Collins, 1978; Merchant, 1985c) and that slack is altogether not necessarily dysfunctional (Merchant and Manzoni, 1989; Jaworski and Young, 1992; Davila and Wouters, 2005). The debate remains divided as Lal et al. (1996) challenged Merchant's (1985c) use of non-random sampling and found evidence of higher slack as a result of BP. However, evidence beyond the narrow concept of slack is limited and it is argued that the BP practices may enhance a general behaviour of information manipulation and gaming amongst managers i.e. evidence that budgetary participation may provide a broader impetus for managers to consider the various forms of dysfunctional behaviour remains scant. Since Lukka's (1988) concept of budgetary bias is the most relevant to the notion of dysfunctional behaviour, this study will rely on Lukka's argument that budgetary participation enhances the prospect of dysfunctional behaviour. Hence, it will be hypothesised that the degree of budgetary participation by middle managers will increase their level of dysfunctional behaviour. In addition, budgetary participation can also essentially be viewed as an information sharing process from the subordinate manager to his/her supervisor (Birnberg et al., 1983). When subordinates have an information advantage, they can misrepresent the information to negotiate easier targets, thereby denying valuable information to supervisors and by extension, the opportunity to achieve maximum efficiency in activities (Davila and Wouters, 2005, p. 590). There is thus an unavoidable efficiency loss (Kirby et al., 1991) and slack can be also detrimental since it isolates the subordinate manager from the motivational properties of budgets (Bourgeois, 1981). As a result,

H3: There is a significant and positive relationship between the level of budgetary participation and the managers' extent of dysfunctional behaviour (information manipulation).

Whilst the focus of past studies has been on the information/communicative and motivational aspects of budgetary participation and procedures, there has been less emphasis on the operational implications of the budgetary process subsequent to the participation stage. A certain level of budgetary participation could imply that the subordinate has internalised and committed to the plan and has had a reasonable level of influence in the sales or expenses target (or any other standard) (e.g. Mia, 1987; Murray, 1990). On the other hand, whilst it is acknowledged that a set budget target can reduce ambiguity amongst managers (Marginson and Ogden, 2005), an imposed budget (i.e. any low level of participation) or target can also put pressure on the manager to keep to the budget or to appear to keep to the budget (Hopwood, 1980; Merchant and Manzoni, 1989). For example, the manager may engage in the selective use of funds just to keep within the budget, even if it means curtailing key tasks or activities. In essence, the role one associates to budgetary participation can be diversely interpreted according to the theoretical perspectives. For instance, Kren (1997) argues that these interpretations reflect a debate between behavioural-oriented and agency-oriented theories on how management's behaviour can best be controlled. However, as mentioned earlier, there is little published evidence on the "follow-on" impact of budgetary participation on actual activities or actions (Shields and Shields, 1998) but it has been recently argued that the level of participation may signal to the manager that he/she has the opportunity to operate his/her activities without much oversight due to his/her access to private information. Therefore, the following hypothesis is formulated.

H4: There is a significant and positive relationship between the level of budgetary participation and the managers' extent of dysfunctional behaviour (gaming).

4.1.3. RAPM to Dysfunctional Behaviour Relationship

Research on the performance evaluation style of managers has been extensive, with Hopwood (1972) being credited with the first empirical study on the role of accounting data in managerial performance evaluation. Hopwood (1973, p. 88) further contended that a high budget emphasis (budget constrained style) would result in fiddling, short-time horizons, distrust, rivalry and parochial attitudes; a proposition that was not supported by Otley's (1978) replicating study, hence partly setting off the debate on the contingency framework to explain such inconsistent findings. Hirst (1983) does find evidence of a positive relationship between tension and RAPM and suggests that more research must consider other forms of dysfunctional behaviour (1983, p. 603). Van der

Stede (2000, p. 610) reports that the empirical evidence regarding the alleged dysfunctional consequences of a rigid budgetary control style remains equivocal, in spite of the extensive research on the impact of budget emphasis. For example, Dunk (1993a) and Merchant (1985c) found that budget slack was low when the budget emphasis was high. One explanation put forward to support such results is that the intended consequences of a RAPM system is to reduce dysfunctional behaviour, so that such relationship is already embodied and existent at the time of observation i.e. when administering the questionnaire.

Vagneur and Peiperl (2000) examine the different measures/constructs used for budget emphasis as a potential reason for the absence of convergence in post-Hopwood empirical testing. Indeed they have observed substantial evolution in the measures and scales used to operationalise performance evaluative style (2000, p. 523). Despite the existence of significant correlations between the different measures, there is evidence of divergence between the recently modified variables with the ones originally devised by Brownell (1982a), Hopwood (1972) and Otley (1978), hence providing partial explanation for inconsistent and non-comparable findings.

Based on the idea that dysfunctional behaviours might re-emerge in some other form and hence explain both positive and negative relationships, Van der Stede (2000) investigated the impact of budgetary control¹¹¹ on slack and in turn the influence of slack on short term managerial orientation. Using structural equation modelling (SEM), Van der Stede (2000) found a negative impact of the control style on slack and negative relationships between slack and managerial short-term orientation. Thus, the findings are suggestive of an indirect relationship between budgetary control style and managerial short-term orientation through budget slack (2000, p. 619) and of dysfunctional behaviour re-emerging in another, but less constrained, form. Van der Stede (2000, p. 619) concludes that these findings, to some extent, support the argument that both behaviours cannot be simultaneously dysfunctional. However, in considering the recent use of Simons' (1995; 2000) conceptualisations in the MCS literature (e.g, Widener, 2007), one can also view that the reliance on accounting performance measures as a primarily diagnostic system that are predicted to have 'negative' consequences. In addition, one can consider that RAPM aims at controlling

¹¹¹ The impact of two independent variables, namely strategy and past financial performance, on the control style was also investigated.

behaviour (the process) by focusing on outcomes. It is hence contended that the mismatch between the inherent role of the sub-control system and its (perceived) actual use generates avenues for manipulation and gaming practices. Hence, in light of some of the control attributes (Fisher, 1995) of RAPM, namely its short-term orientation and its outcome (rather than process), it is hypothesised that:

H5: There is a significant positive relationship between the level of budget emphasis (RAPM) and the manager's dysfunctional behaviour (information manipulation).

In view of the short-term orientation in relying on accounting measures for performance evaluation, subordinate managers may - apart from biasing or filtering the information – decide to take decisions or actions in light of what impact the decision would have on the final outcome. Hence, “cutting corners” on aspects such as customer satisfaction, product quality, and staff welfare could be encouraged as long as these would not have an impact on short-term financial-led measures of performance.

H6: There is a significant positive relationship between the level of budget emphasis (RAPM) and the manager's dysfunctional behaviour (gaming).

4.2 Direct Effects: Contextual Variables to MCS

4.2.1 Contextual Variables to SOP

Standard Operating Procedures provide detailed rules of conduct to assist functional managers in taking their decisions and ensuring proper behaviour. Macintosh and Daft (1987, p. 51) state that SOPs generally include prescriptions for how managers should handle operational situations that arise. However, it can be argued that the extent of their use is dependent on key contextual factors. Two contextual factors of particular relevance at the operational level of the functional manager are task uncertainty and superiors' use of controls.

Although perceived environmental uncertainty (PEU) has been extensively used in the management control literature as a moderating variable, Tymon et al (1998, p. 42) recommend that PEU be operationalised only as a strategic construct i.e. PEU measurement should represent top managers' perceptions of the level of uncertainty affecting the organization. In light of the above, task uncertainty becomes the relevant variable for middle level managers. Task uncertainty has been defined by Galbraith (1973) as the difference between the amount of information required to perform a task

and the amount of information already processed. In a high task uncertainty situation, SOPs can hardly capture or account for all possible situations and thus procedures may become ineffective or inapplicable in regulating behaviour. As stated by Galbraith (1973, p. 4),

“If the task is well understood prior to performing it, much of the activity can be pre-planned. If it is not understood, then during the actual execution of the task, more knowledge is acquired which leads to changes in resource allocations, schedules and priorities.”

This was made apparent in Macintosh and Daft (1987) who considered the association between department interdependence and SOP, and found a negative link. Although departmental interdependence relates purely to the level of interdependence across departments (pooled, sequential or reciprocal), Bouwens and Abernethy (2000, p. 224) do contend that the latter level of interdependence might be more expected in firms manufacturing tailored-only products. In turn, this characteristic is very much linked to one aspect of task uncertainty, in that departments involved in tailor-made activities (as opposed to mass produced ones) can be expected to display a higher level of task uncertainty. However, the task uncertainty construct involves more than just the carrying out of tailor-made or mass-produced activities i.e. the managers' perceptions of the information needs to carry out his/her departmental tasks. Finally, Chenhall (2003, p. 141) predicts that at higher levels of task uncertainty, the more informal the controls need to be rather than using formal bureaucratic controls such as SOPs. Hence, the following hypothesis is generated:

H7: There is a significant negative relationship between the level of task uncertainty and the level of detailed standard operating procedures. i.e. A high (low) level of task uncertainty will lead to a low (high) level of detailed SOP.

The diagnostic vs. interactive use of controls system was first documented and theorized by Simons (1987b, 1990, 1991, 1994, 1995, 2000). He argued that senior managers developed specific attention to a defined set of controls. He first described “interactive controls” as those that senior management chose to monitor personally (cf. Langfield-Smith, 1997; Abernethy and Brownell 1999, p. 191) and ‘interact’ with. Such distinctions can also be associated to an earlier study by Burchell et al. (1980), who considered accounting outputs to be either used as an ‘answer machine’ (diagnostic) or as a ‘dialogue, learning and idea creation machine’ (interactive). Furthermore, the choice of interactive controls provides the signal to subordinates about

which aspects need to be attended to. The nature of standard operating procedures makes it less of interest to an “interactive” style of management superiors as there is little interaction available from the outputs or mechanisms of standard operating procedures. On the other hand, a diagnostic approach to a control system implies that the superior is more willing to use standard operating procedures and will react mostly to exception reports or variations from norms/quotas. Typically, the task of monitoring standard operating procedures is delegated to a staff specialist (Langfield-Smith, 1997, p. 223) and eventually reported to the superior on an infrequent or exceptions basis. Informed by the recent research on the LOC framework (Widener, 2007), an alternative perspective to support this hypothesis relates to the predicted interactions between boundary systems and the diagnostic use of controls. Indeed, SOPs could be also seen as an example of a boundary system. Widener (2007, p. 762) posited that a higher reliance on the latter system would also mean a higher reliance on the diagnostic system in order to maintain the necessary balance for the control structure. In this respect, there is a logical link between a diagnostic (less interactive) style and more standard operating procedures, resulting in the following hypothesis:

H8: There is a significant negative relationship between the superiors’ interactive style of using controls and the level of detailed standard operating procedures i.e. The more interactive (diagnostic) the superior’s use of controls, the lower (higher) the level of SOP.

4.2.2. Contextual Variables to BP

Shields and Shields (1998, p. 52) contended that very few studies considered the antecedent (as opposed to moderating) effects of uncertainty on BP despite the theoretical predictions from economics, psychology and sociology as to the role of uncertainty in the participative budgeting process. One such study (Merchant, 1984) found that the automation of processes and technologies would place greater emphasis on formal budgeting. According to Merchant (1984, p. 300), managers responsible for more highly automated departments have greater requirements to explain variances and to react to expected budget overruns. However, he did not find a link between high product standardization and an increased use of budget. These two elements - which embody to a large extent the concept of task uncertainty – did not therefore yield consistent results. On the other hand, building on the information gathering and sharing perspective of the budgetary process, one may argue that a more uncertain task would

cause a higher level of participation and input from the subordinate manager. Indeed, within the theoretical bases of economics and psychology, participative budgeting is modelled as being used by the superior to obtain information on the subordinate's task and task environment (Shields and Shields, 1998, p. 58). In addition, Brownell and McInnes (1986) argued that participation provides information to managers to clarify the relation between formal rewards and budget goals, which becomes an increasing priority in times of higher task uncertainty, and in the interest of motivating subordinates (Shields and Shields, 1998, p. 65). As such, and as recently contended by Chenhall (2003, p. 141), a higher level of participation is expected in situations of high task uncertainty. Therefore,

H9: There is a significant positive relationship between the level of task uncertainty and the level of budgetary participation i.e. A high (low) level of task uncertainty will lead to a high (low) level of budgetary participation.

Budgetary participation can be a useful tool for a superior in motivating the subordinate, to gather information on the subordinate's operations for eventual improvement, and to better coordinate action between sub-units (Shields and Shields, 1998). As already observed in some companies, the budget participation exercise can also appear to be delegated to a staff specialist (Langfield-Smith, 1997, p. 223) i.e. the management accountant and eventually reported to the superior on an exceptions basis. However, there are generally more interactive elements within the proposal, negotiation, and meeting stages of the budgetary process. For instance, Bisbe and Otley (2004) recently asserted that an interactive use of control systems (including budgets) provides the opportunity for top management to get personally involved in the processes and outputs of the control systems. This interactive use motivates information gathering, face-to-face dialogue and debate (2004, p. 711). In the words of Simons (1991) himself, interactive managers "... of these businesses spend a great deal of time debating and adjusting profit plans during the year. Top managers are continually revising and discussing profit commitments with subordinates..." (1991, p. 55). Hence,

H10: There is a significant positive relationship between the superiors' interactive style of using controls and the level of budgetary participation. i.e. the more interactive (diagnostic) the superior's use of controls, the higher (lower) the level of budgetary participation.

4.2.3. Contextual Variables to RAPM

Hartmann (2000) reviewed the evidence on the contingent relationship between RAPM and dysfunctional behaviour. Initially, environmental uncertainty can be seen to impact on a performance appraisal system that seeks to rely primarily on (historical) accounting figures. However, evidence remains mixed at best (Hartmann, 2000, p. 463). In his subsequent development of the link between RAPM and uncertainty, Hartmann (2000, p. 471) refers to Galbraith's (1977, p. 36) statement that "...uncertainty is the core concept upon which organizational design frameworks are based". Yet, empirical evidence has shown support for hypotheses of both positive and negative effects for environment uncertainty, resulting in what Hartmann terms "the uncertainty paradox" (2000, p. 472). In fact, he finds empirical support for the opposing effects of environmental (positive) and task (negative) uncertainty on the appropriateness of RAPM (Hartmann, 2005). In a bid to capture a more meaningful measure of "uncertainty" relevant to middle-level managers, task uncertainty is thus proposed as an antecedent variable. The arguments relating to its relevance have been already covered in chapter 2 (Section 2.6.1). In spite of the previous findings on the uncertainty paradox, one is compelled to argue that a high level of task uncertainty would not match with a system of evaluation based on accounting or budget performance and this is confirmed by Chenhall (2003). The main argument relates to the inappropriate focus of RAPM on outcomes as opposed to being associated to the level of complexity inherent in high task uncertainty situations. In such situations, and although managers may understand the performance targets that need to be achieved, they will find these difficult and risky to operationalize whilst also perceiving these to be an unfair measure of the performance in their activities (Hartmann, 2005, p. 245; Locke and Latham, 1990). Hence,

H11: There is a significant negative relationship between the level of task uncertainty and the level of RAPM i.e. a high task uncertainty would lead to a low reliance on accounting performance measures.

The diagnostic vs. interactive use of controls system will again be proposed as a variable of interest. The expectation would be that a superior following a diagnostic style of using controls would tend to focus on outcome-based and financially-based measures to assess the actual performance and achievement of specified goals (Bisbe and Otley, 2004; Simons, 1995). On the other hand, an interactive style would involve

the use of multiple measures of performance (including non-financial ones). In addition, within the management accounting systems (MAS) literature, a distinction is made between the narrow (historical and accounting-based measures) and broad (future-oriented and multiple measures of performance) scope MAS and a recent study by Naranjo-Gil and Hartmann (2007) found that there is a positive relationship between the broad scope information and the interactive use of management information (2007, p. 742 and 746). In this respect, one can formulate the following hypothesis:

H12: There is a significant negative relationship between the level of superiors' interactive style of using controls and the extent of RAPM i.e. a high interactive style would lead to a low reliance on accounting performance measures.

4.3. Direct Effects: Contextual Variables to Dysfunctional Behaviour

A number of studies have considered the direct effects of control systems on the extent of dysfunctional behaviours in the presence of contingent variables. Notably, many of them have sought to ascertain the influence of task or environmental uncertainty in enhancing or dampening the extent of dysfunctional behaviour arising from control systems (e.g. Hirst, 1981, 1983; Hayes and Cron, 1988; Ross, 1995). In particular, Hirst (1983) models and finds evidence supporting the hypothesis that task uncertainty acts as a relevant variable in moderating the relationships between RAPM and tension, sparking a debate on the contingency effects of uncertainty (Ross, 1995; Hartmann, 2000). Specifically, there is an expectation that incentives to engage in dysfunctional behaviour are minimised when managers possessing a low degree of task uncertainty are evaluated using internal accounting measures. For units possessing high degrees of uncertainty, incentives to engage in dysfunctional behaviour are minimised when non-accounting measures are employed in the managers' evaluation. However, there is comparatively little evidence on the direct links between uncertainty and dysfunctional behaviour. According to Hartmann (2005, p. 244), task uncertainty is the uncertainty caused by the complexity and diversity of tasks performed by the manager. As opposed to environmental uncertainty, task uncertainty is an inherent job characteristic that relates to managerial work processes and as such, higher levels of task uncertainty will cause managerial response uncertainty, causing confusion and ambiguity. Independently of the state of control systems in the organization, task uncertainty can be sufficient enough to trigger the organizational and individual defensive routines with a view to pre-empt any potential or embarrassment, more as a result of being concerned

and realistic (Argyris, 1990, p. 505). One may thus argue that in unstable and uncertain situations, managers may be more willing to engage in dysfunctional practices as precautionary move.

H13a: There is a significant positive relationship between task uncertainty and the individual element of dysfunctional behaviour: information manipulation.

H13b: There is a significant positive relationship between task uncertainty and the individual element of dysfunctional behaviour: gaming.

Insofar as the diagnostic vs. interactive use of controls is concerned, Simons (1995) asserts that these styles of use of controls have diametrically opposite influences on subordinate managers, and as such labelled them as ‘negative’ forces and ‘positive’ respectively. Indeed, the recent studies using these conceptualisations (e.g. Marginson, 2002; Bisbe and Otley, 2004; Henri, 2006; Widener, 2007; Naranjo-Gil and Hartmann, 2007) generally highlight the ‘beneficial’ implications of the interactive mode for improving communication, information sharing, debate and discussions between the various levels of management, thereby enhancing organizational learning and innovation whilst developing new opportunities/ideas. On the other hand, the diagnostic use of controls implies a more ‘simplistic’ approach which emphasizes the constraining of behaviour, the feedback on past performance and the lack of ongoing attention from senior managers. According to Henri (2006, p. 533), a diagnostic style represents a negative force for two reasons. On the one hand, it focuses on mistakes and negative variances. On the other hand, the sign that is derived when outputs and goals are compared is reversed in the feedback signal to adjust the process. It is thus argued that such use of control systems by senior managers can increase tension and stress, thereby encouraging dysfunctional practices. The fact that a diagnostic use of controls is an intermittent one and is done on an exception basis may provide managers with the flexibility and freedom to engage in such practices. As a result,

H14a: There is a significant negative relationship between the superior’s interactive style of using controls and the individual element of dysfunctional behaviour: information manipulation.

H14b: There is a significant negative relationship between the superior’s interactive style of using controls and the individual elements of dysfunctional behaviour: gaming.

4.4. Indirect Effects: Intervening Model (Model 1).

The preceding hypotheses considered the direct effects of task uncertainty, superiors' interactive use of controls, the three control sub-systems and the two forms of dysfunctional behaviour. Within the contingency paradigm, the focus of the study is set on the effects of MCS sub-systems in organizations, subject to contextual factors. MCS sub-systems are seen as (part) consequences of the context (environment) as typified by task uncertainty and superiors' interactive use of controls and in turn dysfunctional behaviours are viewed as consequences of existing control systems. As opposed to a number of contingency studies that have relied on a moderating model, Model 1 in this study relies on an intervening model, as described previously in Chapter 2 (Section 2.8.3) and by Gerdin and Greve (2004). One of the central assumptions within an intervening model is to argue that the antecedent variables will be significantly directly related to the dependent variables i.e. dysfunctional behaviour but these relationships can be mitigated in the presence of the intervening variable i.e. the control system. In other words, one is able to empirically assess the relevance of the control system towards dysfunctional behaviour in the presence of a contextual variable. This will be made consistent with Baron and Kenny's (1986) conditions for assessing a significant indirect effect.

SOPs, BP and RAPM have been, to varying extents, previously researched variables in the context of whether they can lead to dysfunctional behaviour. However, their implications for organizations have been less considered when modelled along with antecedent variables of interest. For example, the role of task uncertainty has been given a renewed role in light of the recent literature, particularly in the RAPM area (Hartmann, 2000; 2005). It was initially put forward by Hirst (1981), who was investigating the different results from Otley (1978) and Hopwood (1972) on the relationship between APM and job-related tension. However, different and conflicting results on the role of uncertainty have persisted (e.g. Ross, 1995; Hartmann, 2000; 2005) and this could possibly be influenced by the previous reliance on moderating models. The use of alternative models was also highlighted by Shields and Shields' (1998) review of the BP literature (1998, p. 64), as way to better appreciate the primacy of BP as an 'organizational' information sharing tool or an 'individual' motivation/attitude mechanism. In addition, there is little empirical understanding on

the antecedents of SOPs. As a result, this study puts forward the following intervening-model-led hypotheses relating to the influence of task uncertainty:

H15a: Standard Operating Procedures have a significant intervening effect on the relationship between task uncertainty and dysfunctional behaviour.

H15b: Budgetary Participation has a significant intervening effect on the relationship between task uncertainty and dysfunctional behaviour.

H15c: Reliance on Accounting Performance Measure has a significant intervening effect on the relationship between task uncertainty and dysfunctional behaviour.

In the case of the style of use of controls, Bisbe and Otley (2004) highlighted the ambiguity on the actual influence of this variable on the organization. Indeed, they claimed that Simons' (1995; 2000) writings are unclear as to whether the interactive use of MCS can be considered to be a mediating or moderating variable. It was eventually the latter model that prevailed and this was consistent with earlier findings by Abernethy and Brownell (1999). Although this present study focuses on dysfunctional behaviour as a consequence of management control systems, it also seeks to explore the influence of Simons' conceptualisation in this relationship. The more recently published empirical studies have shown the emerging relevance of the interactive/diagnostic dichotomy influencing the use of MCS in organization but there has not been any attempt at modelling it in relation to dysfunctional behaviour. As a result, this prompts the following hypotheses:

H16a: Standard Operating Procedures have a significant intervening effect on the relationship between superiors' use of controls and dysfunctional behaviour.

H16b: Budgetary Participation has a significant intervening effect on the relationship between superiors' use of controls and dysfunctional behaviour.

H16c: Reliance on Accounting Performance Measure has a significant intervening effect on the relationship between superiors' use of controls and dysfunctional behaviour.

In schema form, the intervening model can be expressed below in Figures 4.1 and 4.2. In line with the assumptions of Baron and Kenny (1986) and as put forward in Bisbe and Otley's (2004, p. 713-714) study, the direct relationships between the contextual variables and dysfunctional behaviour are hypothesised to be relatively small in proportion to the (larger) indirect relationships that will emerge via the control systems.

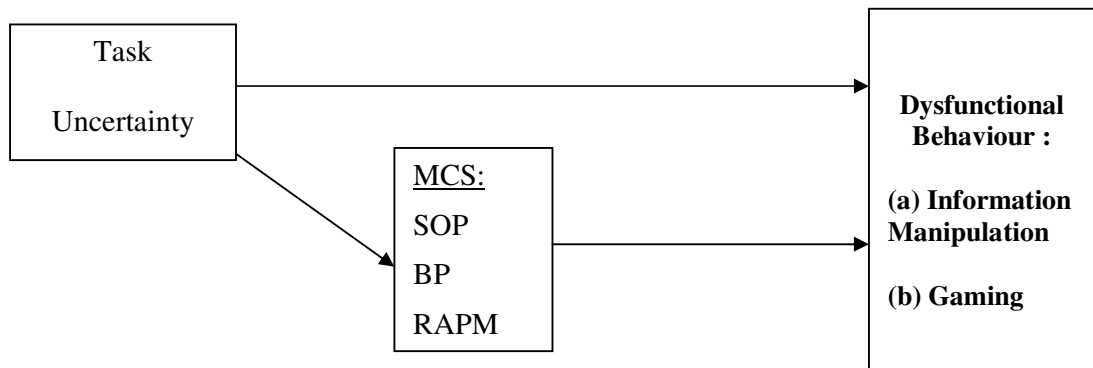


Figure 4.1: Model 1a: Intervening Effect of MCS (Task Uncertainty)

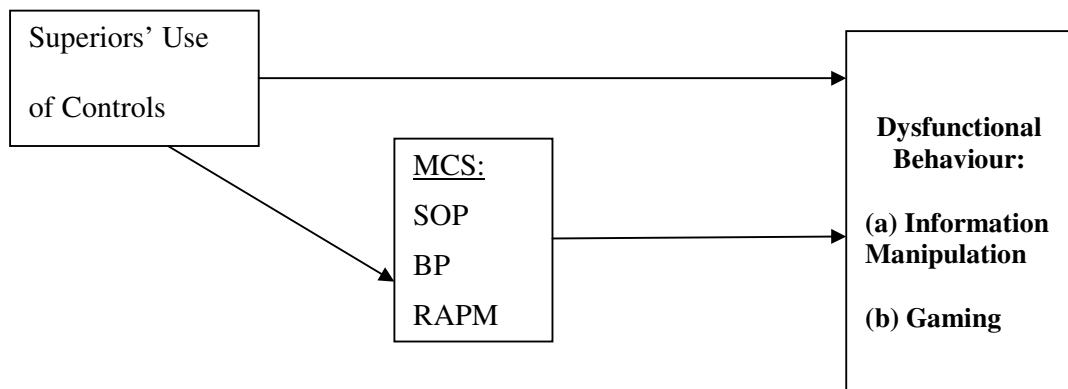


Figure 4.2: Model 1b: Intervening Effect of MCS (Superiors' use of controls)

4.5. Institutional Theory-led Effects: The Moderating Model (Model 2)

This section considers a second model of interest in the linkages between the extent/nature of three control sub-systems and the extent of dysfunctional behaviour by middle level managers. It is argued that such a relationship is moderated by the impact of institutional-led pressures, as perceived by internal organizational actors. In particular, Carruthers (1995, p. 314) asserts that new institutionalism has become a recent paradigm to understand the way various accounting processes actually operate in organizations and as perceived by the people affected by these processes. This new institutionalism is to a large extent focused on legitimacy and legitimation as a way to justify organizational practice and structure (Greenwood and Hinings, 1996; Selznick, 1996; Suchman, 1995; Powell and DiMaggio, 1991; Zucker, 1983; Richardson, 1987).

To date, the institutional perspective within the management control systems (MCS) literature has yet to be empirically tested and remains, to a large extent, dependent on

case based evidence. The case study orientation of some institutional-based management accounting studies (e.g. Perez and Robson, 1999; Abernethy and Chua, 1996) infers the need for a grounded context (i.e. a specific industry in a defined time span). But there are also expectations of more generalized institutional pressures (as explained below) that affect the organizational design and MCS of corporations and the meanings and understanding of those MCS, as perceived by the different actors in the organization.

In the context of increasing globalisation, Grandlund and Lukka (1998) identified the drivers of worldwide convergence for management accounting practices and classified them as economic, coercive, normative and mimetic pressures. In particular, normative pressures to adopt management accounting and control practices originate from the increasing professionalisation of management accountants (Grandlund and Lukka, 1998, p. 163), who have promoted the use of practices such as standard operating procedures, budgetary participation, and reliance on accounting performance measures. This is perhaps more a reflection of their training and education rather than an actual need of these practices for the organization. In a similar vein, Kaplan (1984) describes the ‘institutionalization’ of accounting practices, arguing that many current internal accounting practices were developed in the 1930s due to external reporting requirements for firms manufacturing stable products with a higher labour content – which bears little resemblance to the current environment, within both manufacturing and services set ups. Hence, the use of these legitimated ‘elements’ (i.e. control systems) as a result from such pressures is argued to direct attention away from task performance (Zucker, 1987). More recently, Jang (2005, p. 301) also asserted that accounting - as a practice - has become a powerful mode of thought and code of conduct in the modern world, closely associated with a natural extension of rational management.

One relevant finding from past institutional and accounting/control case study research is the issue of ‘decoupling’, whereby organizations tend to avoid dysfunction by decoupling their external image systems from their internal operating processes (Meyer, 1983, p. 237). On one hand, organizations seek to maintain ceremonial conformity to formal structures (MCS) to maintain legitimacy but on the other hand, organizations ‘buffer’ their actual activities by in-building ‘gaps’ (decoupling) between the external and internal uses of the control systems (e.g. Covaleski and Dirsmith,

1983, 1988; Covaleski et al., 1993; Berry et al., 1985) Thus, managers may collude to maintain legitimate external appearances (participation in budgeting) but are still involved in conflict, dysfunctional behaviour and budgetary bias.

As such, these above-mentioned issues will be subsumed and applied in this study, as part of the “legitimizing nature of controls” variable, as perceived at the level of functional managers. This is associated to the concept of ‘organizational legitimacy’, whereby organizations engage in practices to meet societal expectations, fulfilling symbolic purposes rather than task related requirements (Tolbert and Zucker, 1983), has taken a gradual but solid base in management accounting research (Baxter and Chua, 2003, p. 100). As reported in Covaleski et al. (2003, p.31) in a review of budgeting research (also, Oliver, 1991), organizations differ in their propensities to conform to external environmental pressures and in the degree to which they are able to comply with external social demands. This can also extend to sub-unit managers in response to broader organizational demands. Indeed, there is a general view from those authors analysing the implications of institutional theory and legitimacy, which inherently presents the organization as a ‘monolithic’ entity and staff seeking to legitimise its existence vis-à-vis external parties (media, regulator, shareholders and lenders). However, different functional actors may have different views and perceptions about the implications/effects of a legitimacy-seeking behaviour at their organizational level - particularly when these are drawn from a non-accounting background (e.g. marketing, production/operations, human resource etc) whilst the financial-oriented ‘experts’ are the ones most wedded to maintaining rational appearances (Fligstein, 1991, Carruthers, 1995). For instance, Richardson (1987, p. 346) also raised the argument that the process of legitimacy may be a piecemeal one, depending on the level within the organization at which the action occurs. It is thus contended that the managers’ perceptions of the organization’s ‘seeking’ of legitimacy in the use of MCS can influence the extent to which he/she will engage in dysfunctional behaviour.

It would be however be relevant to highlight one important caveat to the development of the subsequent hypotheses. In adopting a moderating model to studying the legitimating effects and perceptions relating to the dysfunctional consequence of control systems, it is implicitly being assumed that the existing controls have not themselves being established as a result of these legitimating perceptions. The fact that the study focuses on non-accounting managers may possibly contribute to the

possibility that such perceptions on the legitimating nature of controls are being indeed independent of the type and use of controls established in companies – which themselves could have been adopted as a means to improve the legitimacy of the organization. Hence, it would be difficult to assert that the perceptions on the legitimating nature of controls are totally independent and un-related to the existence and features of the control systems being in place.

4.5.1. The Legitimizing Nature of Controls and SOP

Meyer and Rowan (1991) argue that organizations frequently establish a variety of rational procedures, processes and rules, but the reasons for doing so are not for more efficient organizational decisions or for better outcomes. In fact, rationalised elements are incorporated because they maintain appearances (Carruthers, 1995, p. 315) and help confer legitimacy upon the organization. Indeed, Carruthers (1995, p. 323) states that organizations

“...emulated and reproduced the procedures, rules and structures that enjoyed external legitimacy. Formal structure came from the state, from professions, or from other “successful” organizations”.

The view can also be taken that SOPs are tools that enhance the role of bureaucracy within the organizations and provide legitimacy to those who are responsible for the compliance of bureaucratic rules and procedures. Their actions are usually typified by the common argument that compliance with the bureaucratic process is more important than a prompt and efficient operating outcome from the same process. In this respect, this study focuses on the influence of institutional pressures from a departmental perspective rather than looking at these pressures from an organizational one. The reason for such focus is to enable a more direct contextual orientation for respondents so as to establish a meaningful fit between an institutional theory-based variable, in influencing the relationship between control systems and the extent of dysfunctional behaviour at the respondents’ operating level. This is consistent with Ruef and Scott’s (1998) analysis on the operation of the legitimation process which may be investigated on several levels, the relevant one here being *“...subunits and specialized aspects of organizations”* (1998, p. 3).

As explained in Chapter 3 (Section 3.5), the legitimacy attached to a particular process (such as the various MCS mechanisms) can be perceived differently by an internal

actor such as the functional manager. From a functional manager's (such as Marketing or Production) perspective, SOPs relating to his/her department are rules that have been enacted as a result of legitimacy pressures and not principally for a rational value-maximising reason. The extent of SOPs therefore directly reduces the effective power and influence of a middle level manager within the latter's own department. The direction of this effect of institutional pressures will depend on how managers perceive the appropriateness of prevailing SOPs in their department.

H17: The greater the legitimating nature of controls is perceived amongst middle managers to SOP controls, the stronger the relationship between the level of detailed SOPs and dysfunctional behaviour (gaming)

In the absence of a hypothesised relationship between SOP and information manipulation (refer to H2), the legitimating variable is not hypothesised to have any impact on this link. Hence:

H18: The legitimating nature of controls as perceived amongst middle managers to SOP controls will not have a significant moderating effect on the relationship between the level of detailed SOPs and dysfunctional behaviour.

4.5.2. The Legitimizing Nature of Controls and BP

In his various writings, Brunsson (1993; 1990; 1989, p. 116-122) frequently singles out the budgetary system as a single process that creates or reasserts formal hierarchical patterns of responsibility within organizations. This is consistent with earlier comments of Cyert and March (1963) who defined budgets as both the substance and result of political bargaining processes that are useful for legitimising and maintaining systems of power and control within organizations (cf. from Covalleski and Dirsmith, 1988, p. 1; also in Czarniawska-Joerges and Jacobsson, 1989). In this respect, the extent of budgetary participation by subordinates/middle level managers is viewed as a political and negotiating exercise, to “..support the positions of the various constituents of budgeting in their confrontation” (Wildavsky, 1979).

Based on the above arguments, Perez and Robson (1999) described the budget setting process in a company and the institutional processes that led to constant budget revisions and conflicts within the organization, in a bid to achieve a target acceptable to the head office. From the analysis of the budget process over a three-year period, Perez

and Robson (1999, p. 404) observed that the involvement of subordinates was viewed purely as a legitimating device. They also noted (1999, p. 404) that:

“The new ‘participation’ in budget setting had the legitimacy both of the new discourse or ideology of ‘empowerment’ in organizations (as practiced by the corporation’s competitors in Japan) and the claim to superior ‘internalization’ of budget targets by those to whom the budget is meant to apply”

In addition, the case study depicted how the head office was imposing “budget participation” for all subsequent budget revisions and not arbitrarily finalising one budget target for the company in the early stages of the budget review. This may be related to a “democratic gesture” (Perez and Robson, 1999, p. 398), which is implicit in the budgetary participation exercise but which was in fact purely ceremonial. Indeed, as earlier quoted from Perez and Robson (1999, p. 404), budgetary participation in the organization may be originating from mimetic isomorphism (e.g. adhering to competitors’ practices) and coercive isomorphism (e.g. required by the parent company). If middle managers perceive that the practice of budgetary participation in their organization is merely a product of institutional-led pressures, then the extent to which they engage in dysfunctional behaviours, particularly budgetary bias, may be increased because they believe the budget setting process purely meets an appearance of legitimacy and is not used primarily for seeking views from functional managers. This sense of lack of purpose to the process is likely to incite dysfunctional behaviours during the process. Therefore,

H19: The greater the legitimating nature of controls perceived amongst middle managers to BP, the stronger the relationship between the level of budgetary participation and dysfunctional behaviour (information manipulation).

In addition, it is argued that managerial perceptions as to the legitimating nature of controls will have similar influences on gaming practices.

H20: The greater the legitimating nature of controls perceived amongst middle managers to BP, the stronger the relationship between the level of budgetary participation and dysfunctional behaviour (gaming)

4.5.3. The Legitimizing Nature of Controls and RAPM

Similarly, the extent of the relationship between RAPM and managerial dysfunctional behaviours can again be influenced by institutional pressures. Consistent with the

institutional-led arguments mentioned in the case of budgetary participation, a RAPM policy aims at rationalising and legitimising the process of responsibility, accountability and performance assessment of unit managers in the organization, based on a widely-acceptable 'objective' measure of performance (accounting numbers). Indeed, Meyer and Rowan (1991, p. 51) mention that techniques for measuring, monitoring and controlling organizational performance are integrated within the organization's formal structure to confer legitimacy upon these organizations (cf. Carruthers, 1995, p.315).

Vagneur and Peiperl (2000, p. 523) observe that most Anglo-American companies used budget-centred performance measurement as a central feature of their management control systems, thus justifying the need for further research in understanding the consequences of RAPM. However, the exact reasons for explaining such convergence of practices are not provided by the authors but in light of the earlier arguments of Granlund and Lukka (1998), such phenomenon could be the result of institutional pressures supporting internal short term financial measures of performance as a way to reflect the short-term profit targets expected of company directors towards satisfying shareholders and the stock market. In light of the contemporary developments in non-accounting measures for performance evaluation, the continuous convergence towards RAPM remains troubling but can be explained by the need for companies to adopt a "long-standing" practice, even if its usefulness in internal performance evaluation appears to be put into question. Hence, one can hypothesise that perceptions on the legitimating nature of controls will enhance the links between reliance on accounting performance measures and both forms of dysfunctional behaviour:

H21: The greater the legitimating nature of controls perceived amongst middle managers to RAPM, the stronger the relationship between the level of RAPM and dysfunctional behaviour (information manipulation).

H22: The greater the legitimating nature of controls perceived amongst middle managers to RAPM, the stronger the relationship between the level of RAPM and dysfunctional behaviour (gaming).

In conclusion, the Model 2 schema can be summarised in Figure 4.3.

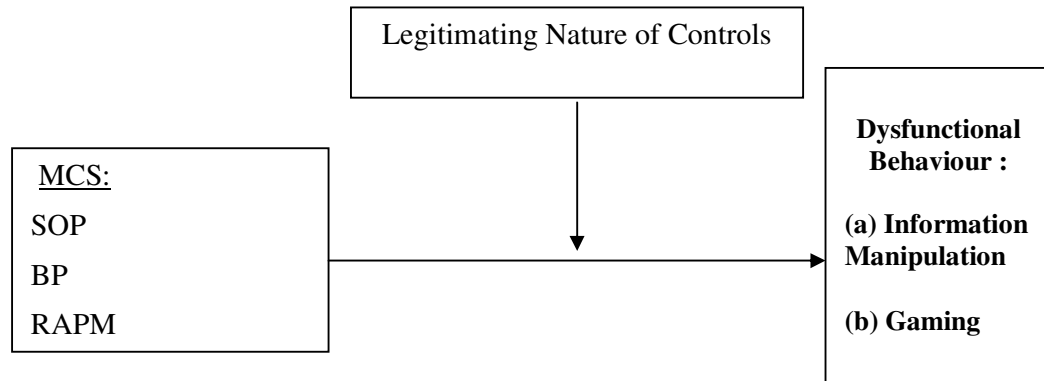


Figure 4.3: Model 2 - Moderating Effect of the legitimating nature of controls perceptions on MCS to Dysfunctional Behaviors.

4.6. Chapter 4: Concluding Remarks

The aim of this chapter was to present the arguments for a series of hypotheses to reflect the research questions and objectives initially set out in Chapter 1. A number of specific research gaps and issues were identified in Chapters 2 and 3, that broadly pointed to the need for further evidence on the implications and consequences of three ‘typical’ MCS sub-systems, particularly in relation to (i) contingency theory-based research and the modelling/relevance of the two selected contingency variables, namely task uncertainty and superior’s use of controls, (ii) the ‘nature’ of dysfunctional behaviour, particularly its broader conceptualisation and its association to practices such as gaming and information manipulation, and (iii) the emergence of more interpretive perspective on the role and nature of controls in organizations, in particular originating from institutional theory.

In this respect, hypotheses have been put forward to test and/or assess the validity of these arguments/issues. These are summarised in Table 4.1 overleaf. The direct effects – set out in hypotheses H1 to H14b -, describe the predicted relationships between Standard Operating Procedures (SOP), Budgetary Participation (RAPM), Reliance on Accounting Performance Measures (RAPM), Task Uncertainty (TU) and Superior’s use of Controls (INT), Dysfunctional Behaviour: Information Manipulation (DBIN) and Dysfunctional Behaviour: Gaming (DBGGA).

<i>Hypothesis</i>	<i>Relationship</i>	<i>Direction of Relationship (if applicable)</i>
<u>Direct Effects:</u>		
H1	SOP to DBGA	Negative
H2	SOP to DBIN	No relationship
H3	BP to DBIN	Positive
H4	BP to DBGA	Positive
H5	RAPM to DBIN	Positive
H6	RAPM to DBGA	Positive
H7	TU to SOP	Negative
H8	INT to SOP	Negative
H9	TU to BP	Positive
H10	INT to BP	Positive
H11	TU to RAPM	Negative
H12	INT to RAPM	Negative
H13a	TU to DBIN	Positive
H13b	TU to DBGA	Positive
H14a	INT to DBIN	Negative
H14b	INT to DBGA	Negative
<u>Indirect Effects - Intervening Model 1:</u>		
H15a	TU-SOP-DB	Significant Intervening
H15b	TU-BP-DB	Significant Intervening
H15c	TU-RAPM-DB	Significant Intervening
H16a	INT-SOP-DB	Significant Intervening
H16b	INT-BP-DB	Significant Intervening
H16c	INT-RAPM-DB	Significant Intervening
<u>Legitimizing Nature of Controls Effects - Moderating Model 2:</u>		
H17	LNC moderates SOP to DBGA	Positive (enhancing)
H18	LNC moderates SOP to DBIN	Not significant
H19	LNC moderates BP to DBIN	Positive (enhancing)
H20	LNC moderates BP to DBGA	Positive (enhancing)
H21	LNC moderates RAPM to DBIN	Positive (enhancing)
H22	LNC moderates RAPM to DBGA	Positive (enhancing)

Table 4.1: Summary of Hypotheses for the Study

The intervening effects summarised in hypotheses H15a to H16c predict that each of the control sub-systems has a significant intervening role when considering the influence of one contingency factor. A final set of hypotheses (H17 to H22) considers the moderating effect of a new variable (Legitimizing Nature of Controls, as perceived by the managers (LNC) variable on the various links between MCS sub-systems and dysfunctional behaviours. In addition to the four issues identified at the start of this section, the literature review chapters have also revealed a number of methodological

and analytical weaknesses, relating to the design/use of questionnaires and Likert-scales to collect responses and the use of regressions and related techniques to analyse the resulting data. These will be addressed and documented where applicable in the subsequent chapters.

Chapter 5

Sample Selection, Questionnaire Design and Variable Measurement

5.0 Introduction

This chapter will elaborate on the data collection procedures and variable measurement adopted in line with the objectives and hypotheses of the study. Where applicable, it draws from the previous arguments and findings in the literature as well as addresses methodological issues identified in Chapters 2 and 3.

5.1. Sample Selection

The study will focus on responses from functional managers in manufacturing companies, with particular emphasis on production/operations and sales/marketing managers. Australia is known to have established manufacturing sectors, involved in a fairly diverse set of activities and products. Whilst there may be a valid interest in the MCS of service companies as well, the majority of previous contingency MCS studies have studied functional departments in manufacturing companies (e.g. Govindarajan and Gupta, 1985; Simons; 1987a; Kren and Kerr, 1993; Dunk, 1993a, 1993b; O'Connor, 1995; Tsui, 2001) and one can expect some differences¹¹² in results inherent to service organisations. Hence, in an attempt to ensure some level of comparability with previous studies, service organizations (including public sector entities) are not considered in this study.

The target companies were identified and compiled using the Kompass Directory (Australia). This provides details of the company's activity, registered and plant addresses, number of employees, and even, in a majority of cases, the names of the CEOs and functional managers. Given that the study depended on a reasonably representative, and sufficient, number of respondents, the following selection procedures were applied:

¹¹² For example, refer to Modell (1996) for a review of management accounting studies in service organisations.

- (a) Using the Kompass classification, the list of manufacturing companies were identified from the activity codes 20 to 49, each code (e.g. 20, 21, 35....etc) representing a generic manufacturing activity.
- (b) Since the study relied on companies having a clearly defined organisational structure and the existence of a management accounting control system, size (in terms of more than 200 employees) was then used to narrow the list of manufacturing companies.
- (c) Using the list of companies generated from (a) and (b), the Kompass record for each company was scrutinised and only those providing the actual names of their sales/marketing and/or production/operations managers were selected. It was felt that a request for questionnaire reply had much higher chances of being entertained if it was addressed to the appropriate manager by name¹¹³ rather than an impersonal “The Marketing Manager”. It has to be pointed out that a minority of those companies (about 10%) listed in the Kompass Directory did not provide at all the names of their managers.

The above procedures resulted in a list of 359 manufacturing companies and 568 identified managers classified into 301 “Commercial or Marketing or Sales” Managers and 267 “Operations or Technical or Manufacturing or Production” Managers. The activity classification and number of selected companies per activity and employee range are detailed in Appendix 5.1.

5.2. Questionnaire Design and Variable Measurement

Smith (2003, p. 117) criticises the survey method as being the “poor man’s experiment” because of its inability to assign subjects randomly to treatments, and their consequent inability to rule out rival hypotheses. Briers and Hirst (1990, p. 257) were also of the view that use of questionnaires in a cross-sectional studies oversimplifies the phenomena (also stated by Chapman, 1997) under investigation and calls for use more longitudinal studies to focus on the process of MCS. In his review of mail survey studies in management accounting research over the period 1985-1994, Young (1996) reported on a list of issues relating to the use of mail questionnaires such as the low target populations, the low number of respondents, absence of information on the use of follow-up procedures, lack of analysis of non-responses, and no proper use of sampling

¹¹³ In some cases, contact names and details were also sought from company websites.

procedures. Based on his analysis of journal articles, Young (1996, p. 55) reports on the decline in the use mail survey methods over the stated period and a growing interest in alternative forms of research methods i.e. principally fieldwork and experiments. Nevertheless, and despite the previously used negative tones, Young (1996, p. 67) proposes seven “improvement opportunities” for survey-based research.

As also discussed in Chapter 2 (Section 2.8.1), the mailed questionnaire survey remains a widely used and a practical method of data collection for MCS studies. In this respect, however, it is important to design a questionnaire that addresses all issues of ambiguity and interpretation. For example, the questionnaire was reviewed from an Australian viewpoint to ensure consistency of understanding¹¹⁴. The various items and measures used for the variables are now presented¹¹⁵:

5.2.1. Standard Operating Procedures (SOP)

Although the earlier studies by Rockness and Shields (1984) and Macintosh and Daft (1987) did examine the effects of SOP as a management control system, the measurement and items were very different. Rockness and Shields (1984, p. 172) used only one likert-scale item termed “rules and procedures” whereas Macintosh and Daft (1987, p. 53) focused on physical counts (number of books and pages) to measure the extent of SOP. However, the more recent “Structuring of Activities” variable, as used in Chow et al (1999), was made up of 8 sub-items relating to the extent to which procedures and manuals existed for a list of management activities.

Figure 5.1 is a reproduction of the SOP items (labelled Question 1) to be used in this study. There were two notable amendments made to the Chow et al (1999) instrument and these are detailed below:

¹¹⁴ The language differences are considered to be at a minimum since the official language for all government and business activities in Australia is English.

¹¹⁵ All data validity and reliability tests will be reported in Chapter 6.

We are interested in the management controls which derive from your company's standard operating procedures i.e. rules, policies, regulations, manuals, and checklists.

(1) Please rate, by circling a number from 1 to 5, the extent to which your company has standardised and documented procedures (such as written manuals or online procedures) for the following classes of activities (Circle "0" if not applicable):

	Very Low	Low	Moderate	Substantial	High	Not Applicable
(a) Purchase of Capital Equipment	1	2	3	4	5	0
(b) Hiring and Firing of Personnel	1	2	3	4	5	0
(c) Procurement of Inputs (Raw Materials, Consumables or Other Regular Expenses)	1	2	3	4	5	0
(d) Operating Procedures, Time Plans and Schedules	1	2	3	4	5	0
(e) Making tradeoffs within the line items of your department's current period budget	1	2	3	4	5	0

Figure 5.1: Standard Operating Procedures Items

Firstly, Chow et al. (1999, p. 458) had two separate sets of questions for the same sub-items, namely a question on the extent of standardized procedures and a second question of the extent of written manuals which specify how to perform. Given the high Cronbach alpha obtained for this variable (0.93) in Chow et al. (1999), there is a strong possibility that both sets of questions have been interpreted as being exactly the same and indeed, one can reasonably expect that standardised procedures are indeed written ones (whether it is hard copies or soft copies e.g. via an intranet system). Hence, the two questions have been collapsed into one main question.

Secondly, three sub-items, namely (a) development of new outputs, (f) pricing of new outputs and (g) distribution of new outputs, may not be necessarily applicable to all the functional managers and targeted companies. To ensure a consistent understanding of SOP cross-sectionally, only the five items that are of direct relevance to all functional managers have been used in this study.

5.2.2. Budgetary Participation (BP)

Despite Chenhall's (2003, p. 131) criticisms that some MCS-based measures (such as budgetary participation) need to be updated to take into account new developments in management accounting, there is no recent evidence to suggest that the Milani (1975) score is becoming increasingly non-contemporary¹¹⁶.

Hence, Questions 2 to 7 are based on Milani's (1975) original items and these are reproduced in Figure 5.2. These have been slightly amended to reflect the context of functional departments.

We are interested in the extent to which you participate in the setting of budget targets for your department.

Please respond to each of the following questions by circling a number from 1 to 5.
(Circle "0" if not applicable)

(2) What is the extent of your involvement in the budget setting process for your department?

1	2	3	4	5	0
Very Low	Low	Moderate	Substantial	High	Not applicable
Involvement	Involvement	Involvement	Involvement	Involvement	

(3) Which best describes the reasoning provided by your supervisor, when budget revisions concerning your department are made?

1	2	3	4	5	0
Not convincing	Slightly Convincing	Moderately Convincing	Substantially Convincing	Highly Convincing	Not Applicable

(4) How often do you voluntarily state your opinions and/or suggestions concerning the budget to your supervisor?

1	2	3	4	5	0
Never	Rarely	Sometimes	Quite Often	Very Frequently	Not Applicable

(5) How much influence do you feel that you have on the final budget figures?

1	2	3	4	5	0
Very Low Influence	Low Influence	Moderate Influence	Substantial Influence	High Influence	Not Applicable

(6) How important is your participation to securing an appropriate budget for your department?

1	2	3	4	5	0
Very Low Importance	Low Importance	Moderate Importance	Substantial Importance	High Importance	Not Applicable

(7) How often does your supervisor seek your opinions and/or suggestions when setting the budget?

1	2	3	4	5	0
Never	Rarely	Sometimes	Quite Often	Very Frequently	Not Applicable

Figure 5.2: Budgetary Participation Items

5.2.3. Reliance on Accounting Performance Measure (RAPM)

As discussed in Chapter 2 (Section 2.5.4), there have been various measures and items used to operationalize RAPM. Whilst Lau and Buckland (2000, p. 45) argued for the Brownell (1985) rating approach rather than the ranking approach and calculated RAPM as the summation of the two key items (“Meeting the budget” and “My concern with costs”), Vagneur and Peiperl (2000, p. 523) indicate some loss of correlation power (although still significant) with the ratings-based measures in comparison to the rankings-based approach, particularly in the case of Brownell’s (1985) method. Otley and Fakiolas (2000) analysed the different questions and items used in the various RAPM instruments and tried to explain the origins of the differences between the four groups of studies. On the other hand, Vagneur and Peiperl (2000) identified five types of RAPM measurement (labelled A-E) and empirically tested each of these measures via correlation matrices and in relation to various outcome variables.

The five RAPM measures range from the original categorical variable (Hopwood, 1972, 1973), the ordinal variable (Otley, 1978), the binary variable (Brownell, 1982), the summed/continuous ratings (Brownell, 1985) and the algebraic/continuous ratings (Harrison, 1992)¹¹⁷. The last two measures have been used more extensively as from the mid 1980s. Based on questionnaire responses from 68 business unit managers in UK and using firstly a correlation matrix, Vagneur and Peiperl (2000, p. 521) showed that all the six measures of evaluative style were positively and significantly correlated. However, the degree of relationship between the original Hopwood (1972, 1973) measure and those of Brownell (1985) and Harrison (1992) were relatively quite lower than the relationship between Hopwood’s (1972, 1973) measure and those of Otley (1978) and Brownell (1982). These differences do shed at least a partial light on the extent of inconsistent results in RAPM studies. In addition, the relationships (although significant) between RAPM metrics and performance variables (ranging from stock market abnormal returns through to self-rated performance metrics) were not consistent and essentially worsened as the original RAPM construct was being modified (Vagneur and Peiperl, 2000, p. 523).

¹¹⁷ Vagneur and Peiperl (2000, p. 518) also investigated a variant of the algebraic/continuous rating. Hence, their empirical analysis refers to six different RAPM calculations.

In addition, Otley and Pollanen (2000, p. 503) criticise the use of the absolute scores (as done in the case of Brownell, 1985; Lau and Buckland, 2000) since the measure of reliance on accounting measures must be relative to reliance on other non-accounting measures. In this respect, Harrison's (1992, 1993) ratio of accounting vs. non-accounting is more logical and appealing. Hence, this approach will be used in this study. Eight questions/items were taken from Otley (1978) (used also in Brownell, 1985, 1987) and are disclosed in Figure 5.3 below. However, non-accounting items (h) and (j) were added in consideration of the rising interest and focus that organisations attach to customer satisfaction and teamwork¹¹⁸.

This section seeks your views as to how your supervisor evaluates your performance.

(8) How much importance does your supervisor attach to each of the following criteria in evaluating your performance?

	Very Low	Low	Moderate	Substantial	High	Not Applicable
(a) The effort I put into my job	1	2	3	4	5	0
(b) My concern with quality	1	2	3	4	5	0
(c) My contribution to company profits	1	2	3	4	5	0
(d) The relationships I have established with fellow staff	1	2	3	4	5	0
(e) How efficiently I run my unit	1	2	3	4	5	0
(f) How well I get on with my supervisor(s)	1	2	3	4	5	0
(g) How well I meet the budget	1	2	3	4	5	0
(h) Customer service ratings	1	2	3	4	5	0
(i) My attitude toward my work	1	2	3	4	5	0
(j) How well I develop a team	1	2	3	4	5	0

Figure 5.3: Reliance on Accounting Performance Measures Items

5.2.4. Dysfunctional Behaviour

As discussed in Chapter 2 (Section 2.7.2), there has been little empirical research on the extent of managers' dysfunctional behaviour, as conceptualised by Jaworski and Young

¹¹⁸ On the other hand, Brownell and Hirst (1986) and Harrison (1992, 1993) had two additional items, labelled as "How well I cooperate with workers at my level in the organisation" and "How well I cooperate with individuals outside the firm (e.g. suppliers, customers)".

(1992). The latter's five item scale attempted to provide an overall picture of dysfunctional behaviour and the scale achieved a satisfactory reliability level (Cronbach alpha - 0.72). On the other hand, the confirmatory factor analysis identified a validity problem due to the presence of another instrument – peer dysfunctional behaviour – but this is not expected to occur in this study as the objective is not to assess the impact of peer-influenced dysfunctional behaviour. In contrast, a more recent study by Van der Stede (2000) attempted to measure other sub-dimensions of dysfunctional behaviour, namely slack and short term orientation. However, his measures appeared too constrained to consider for the three sub-control systems. In consideration of the clear distinction between the information manipulation element (made up of aspects relating to biasing, filtering, and smoothing) and the gaming element, these two sub-concepts of dysfunctional behaviour have been operationalised in the questions.

Hence, inspired primarily from Jaworski and Young's (1992) initial attempts, the seven items listed in Figure 5.4 (Questions 11a to 11g) were used to measure managerial dysfunctional behaviour. Items (a) to (c) were aimed at eliciting responses on gaming whilst items (d) to (g) seek to gather views on information manipulation. As Merchant (1990) noted some (understandable) reluctance in answering such questions, the following modifications were made in a bid to elicit more honest and unbiased responses, or simply to ensure that managers would actually respond to such questions without being necessarily influenced by ethical considerations:

- (a) Instead of using the active tense (i.e. "I tend to ignore....."), all questions used the passive tense or referred to managers in general. This would ensure that respondents did not take the questions personally, thereby preventing possible non-responses or biased ones.
- (b) The questions were scaled using the "forced choice" (even) scale rather the usual odd-scale. Although these have been rarely used in previous MCS studies, there is no conceptual issue arising from the use of even scale, especially in cases when one can expect respondents to pick the neutral position because they are reluctant to answer (Frary, 1996).

(c) The original item “Even if my productivity is inconsistent, I still try to make it appear consistent” (Jaworski and Young, 1992) was removed because it was not necessarily relevant to the sample of respondents and it was ambiguous.

The following statements relate to your attitudes towards management control systems in your department.

(11) Please indicate the extent of your agreement with each statement by circling a number from 1 to 6. (Circle “0” if not applicable)

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree	N/A
(a) Certain job-related activities can be safely ignored when they are not monitored by a supervisor.	1	2	3	4	5	6	0
(b) In certain cases, tasks can be subtly adjusted to align departmental performance with organizational goals.	1	2	3	4	5	6	0
(c) Management control systems do not cause managers to be particularly concerned with improving efficiency in their area of responsibility.	1	2	3	4	5	6	0
(d) Managers tend to emphasise data that reflects favourably upon them when presenting information to upper level management	1	2	3	4	5	6	0
(e) Managers tend to avoid being the bearer of bad news when presenting information to upper level management	1	2	3	4	5	6	0
(f) Most managers will place high importance on their department’s success in getting a generous budget.	1	2	3	4	5	6	0
(g) Managers choose to present information that makes their own performance look better.	1	2	3	4	5	6	0

Figure 5.4: Dysfunctional Behaviour Items (Gaming & Information Manipulation)

- (d) The above-mentioned item was replaced by a more subtle and yet general one, namely item 11(g).
- (e) Item 11(c) was based on one of the items used in the budgetary slack literature (For example, refer to Van der Stede, 2000, p. 615) but reference was made to management control systems in general rather than budget targets.
- (f) Item 11(f) aims at investigating the respondent's opinion in assessing performance only from the point of view of "winning" a generous budget.
- (g) Finally, no specific reference was made to "dysfunctional behaviour" in the questionnaire as it was clearly a "loaded" term and would have influenced the responses. Instead, the sub-heading for items 11(a) to 11(g) was referred to as "Attitudes to Control Practices".

5.2.5. Task Uncertainty

Task uncertainty is a relatively stable and frequent variable of interest in the MCS literature. However, there has been more recent interest in the sub-dimensions of task uncertainty, namely the task difficulty variable e.g. Brownell and Dunk (1991), Lau et al. (1995, 1997) and Lau and Buckland (2000). However, in light of the theoretical arguments suggested by Hartmann (2000) and Chapman (1997) and the low Cronbach alpha obtained for task difficulty in one study (Lau et al., 1995, p. 367), there are some valid justifications in using the broader concept of task uncertainty, especially in the context of using dysfunctional behaviour as an outcome variable.

In this respect, Figure 5.5 details the 6 items used to measure task uncertainty, from the analysis of Whitley et al.'s (1983, p. 59) factor analysis scores. Based on the highest reported scores in Whitley et al. (1983, Table 5, p. 59), Items 9(a), 9(c) and 9(d) have been selected from the task analysability sub-dimension whereas Items 9(b), 9(e) and 9(f) were identified for the task exception sub-dimension. It is noted that there were 10 original (5 each) identified items from the factor analysis with factor loadings exceeding 0.50. All the questions are reverse-coded.

However, the wording of some of the excluded items was in fact very repetitive and could have led to misunderstandings. There was also one item which referred to established procedures and practices and this could create confusion with the questions relating to standard operating procedures.

Approaches to management control may be quite different depending on whether the task is routinely carried out, can be well defined or needs to respond to unpredictable factors. This section seeks to identify the level of uncertainty you perceive in your day-to-day departmental management activities.

(9) Please respond to each of the following questions by circling a number from 1 to 5. (Circle "0" if not applicable)

	Very Small Extent	Modest Extent	Moderate Extent	Considerable Extent	Very Large Extent	N/A
(a) To what extent is there a clearly defined body of knowledge which can guide you in doing your work?	1	2	3	4	5	0
(b) To what extent would you think that your work is routine?	1	2	3	4	5	0
(c) To what extent is there a clearly known way to do the major types of work you normally encounter?	1	2	3	4	5	0
(d) To what extent is there an understandable sequence of steps that can be followed in doing your work?	1	2	3	4	5	0
	Almost None	More than a few	Several	A lot	Almost All	N/A
(e) People in the department perform routinely most of the time.	1	2	3	4	5	0
(f) Departmental members perform repetitive activities in doing their jobs.	1	2	3	4	5	0

Figure 5.5: Task Uncertainty Items

5.2.6. Superior's Interactive vs. Diagnostic Use of Controls.

To the best of my knowledge¹¹⁹, there is only one study that seeks to measure the interactive use of controls and it was geared towards CEOs rather than functional managers (Abernethy and Brownell, 1999). The four items used did factor into one dimension with a relatively low Cronbach alpha (0.59 – Abernethy and Brownell, 1999, p. 196). In addition, the measure focused solely on interactive characteristics whilst it may have been judicious to ask diagnostic-oriented questions as well to confirm the perception of the respondents.

Please indicate the extent of your agreement with each statement by circling a number from 1 to 6. (Circle "0" if not applicable)

(10) Your supervisor(s) often use information provided by various management control systems' reports in the following ways:

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree	N/A
(a) As a means of questioning and debating the ongoing decisions made and actions of your department.	1	2	3	4	5	6	0
(b) As a continuous process, which demands your regular and frequent attention.	1	2	3	4	5	6	0
(c) By delegating staff specialists (e.g. accounting department) to monitor the information provided.	1	2	3	4	5	6	0
(d) By infrequently looking at the detailed information provided.	1	2	3	4	5	6	0

Figure 5.6: Superior's Interactive Use of Controls Items

In this respect, and based on Simons (1994, p. 170-171) definitions, the four items used (as described in Figure 5.6) aimed at developing a spectrum ranging from interactive to diagnostic use. Items (a) and (b) were taken from Abernethy and Brownell's (1999, p.

¹¹⁹ At the time this research questionnaire was being designed, more recent attempts to measure interactive/diagnostic styles - notably by Bisbe and Otley (2004) and Henri (2006) - were not yet published. As a result, this present study's measures could not have benefited from the related improvements in construct measurement. Nevertheless, and where applicable, reference to these contemporary studies will be made in Chapters 6 and 7.

202) instrument and a further two items (c) and (d) were developed from Simon's (1994) definitions' of diagnostic use of controls. The last two items would then be reverse-coded since it is expected that respondents would perceive their managers to have either a high (low) degree of interactive use or a low (high) degree of diagnostic use. Finally, as in the case of dysfunctional behaviour, forced choice Likert scales were used to prevent neutral and ambiguous responses.

5.2.7. The Legitimizing Nature of MCS

In the absence of previous studies using Likert-scale questionnaires to gather views on institutional theory-led variables, the following questions were developed from the theoretical underpinnings of institutional theory and more precisely the legitimacy / legitimation concept. Although the latter is the product of external forces, it is argued that the level of respondents (middle-level functional managers) could be a mitigating factor in gathering valid and appropriate perceptions of an external-led legitimation process. This is the key reason for focusing on internal perceptions as to whether controls are established for legitimation purposes rather than rational ones. The questions are reproduced in Figure 5.7.

As in the case of dysfunctional behaviour, the questions and headings did purposely not make reference to terms such as legitimacy. The heading "purpose of control systems" and the statements used made specific and separate reference to the individual control sub-systems.

It is noted that for each question (No. 12 to 14), the scales and the reference to MCS sub-systems were repeated. Whilst not making specific reference to legitimacy, it is argued that the statements underlined key elements of internal legitimacy, namely the need to conform to control systems whilst this negatively affects performance and outcomes (questions 12 and 14), and the fact that control systems merely re-assert hierarchies but have little influence on decision making (question 13). Although several scales were provided for each control system, the objective was to ensure more precise answers to the questions as some organizations might not have one or two of the specific control sub-systems. However, the expectation is that all questions would factor to provide one variable that would cut across all the control sub-systems

This section collects your views on the purposes of management control systems in your company.

Please indicate the extent of your agreement with each statement by circling a number from 1 to 6. (Circle “0” if not applicable)

(12) An emphasis on the carrying out of the following control functions has compromised the achievement of actual outcomes in my department:

(13) The following control functions serve as ways of creating or reasserting formal hierarchical patterns of responsibility in the company, but have little influence on actual decision-making in my department:

(14) When the following control functions have been prescribed by head office/central management policies, my department has faithfully carried them out regardless of their impact on departmental output targets:

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree	N/A
(a) Compliance with Standard Operating Procedures	1	2	3	4	5	6	0
(b) Participation in Budget Setting	1	2	3	4	5	6	0
(c) Determination of performance evaluation criteria to be applied to managers	1	2	3	4	5	6	0

Figure 5.7: The Legitimizing Nature of Controls Items

5.2.8. Demographics and Bio-Data

Although there were no specific hypotheses generated in relation to demographic data, the actual profile of respondents would be still important to analyse the various responses. In this context, several questions were sought in relation to:

(a) Personal data – gender, age, length of service in company and functional area of responsibility. The last item will allow some confirmation that the questionnaires were indeed sent to the targeted respondents.

(b) Company-based data – Information on the actual size (in terms of number of employees), and the ownership status of the company i.e. is it a subsidiary, part of a multinational group and/whether the company is listed on a stock exchange.

Finally, an opportunity was given to respondents to provide additional information via an optional open-ended question, asking managers to convey their thoughts on any aspect in the use of MCS in their companies.

5.3. Questionnaire Validation / Pilot-Testing

All the above-mentioned questions and items were pilot-tested amongst a total of 5 lecturers/academics of the Curtin University of Technology's School of Accounting for clarity, understandability, ambiguity and face validity (Dillman, 1978). In addition, an Australian Management Consultant was contracted to review the questions, particularly in light of some of the "difficult" questions such as dysfunctional behaviour and interactive/diagnostic use of controls and how these are likely to be interpreted by practising managers. Although pilot testing procedures would usually involve managers from the identified sample, it was believed that the lecturers and consultant would provide a quicker and more focused assessment of the questionnaire's contents and format. Indeed, various issues relating to the wording, ambiguous terminologies and sequencing of questions were indeed identified and rectified accordingly.

5.4. Administering the Questionnaire

The questionnaire was administered in Australia to 568 identified functional managers. A one-page explanatory letter entitled "A Survey on How Managers Work with Control Systems in Manufacturing Companies" was sent along with the bound questionnaire and a stamped self-addressed envelope (template letter and questionnaire provided in Appendix 5.2)

There were general instructions and comments on the objectives of the study and it was stated that all responses will be treated anonymously and confidentially. A first period of three weeks was allocated. Consistent with Dillman's (1978) procedures, an incentive was offered to all respondents in terms of participation in a lucky draw and to maintain anonymity, the participants will insert their names/addresses or business card on a tear-off section of the questionnaire.

Although there were initial and valid responses coming in at the outset, there were also a significant number of returned mails due to wrong addresses, companies closed down

and/or managers having left their positions. This was surprising considering the use of the most updated version of Kompass Australia. There were 65 returned questionnaires by the Post Office, hence resulting in a final sample size of 503 potential responses. Finally, a reminder letter (along with a copy of questionnaire and stamped return envelope) was sent with a further deadline of 3 weeks.

5.5. Chapter 5: Concluding Remarks

This chapter detailed the questionnaire design and data collection procedures that have been implemented for the sample. Whilst some of the selected variables are very well established and have been known to generate reliable measures, other variables/items have been less studied and have been amended to take into account the theoretical literature, past empirical results and the respondent's context. All the reported items are presented after having been pilot-tested. In addition, there were some revisions in the potential number of respondents due to wrong addresses, companies having closed, and/or managers having left their positions, leaving a final potential number of 503 Australian managers. Unfortunately, these are unavoidable practical limitations in the absence of a complete and updated database of relevant companies.

All the data analysis procedures and techniques will now be addressed and presented in Chapter 6.

Chapter 6

Data Analysis and Discussion

6.0 Introduction

This chapter will present the findings and analysis in the following sequence (a) Initial Analysis i.e. response rates and profile of respondents (b) Data Reliability and Validity and Descriptive Statistics for the variables (c) Analysis of Model 1 hypotheses via the path analysis technique and (d) Analysis of Model 2 hypotheses via the moderated regression analysis.

6.1. Basic Analysis

6.1.1. Response Rates

In the previous chapter, details were provided as to the identification and potential number of respondents from managers. After the first mail shot, this potential number of respondents was reduced due to reasons such as invalid addresses and companies which had ceased trading. Table 6.1 presents the response rates achieved after the additional mail shot (reminder) was sent.

Initial Number of Managers Surveyed	568
Revised Number of Managers	503
Valid Responses Received	130
% Response Rate	25.8%
<i>Table 6.1: Response Rates for the Study</i>	

In relation to previous studies and comments in Chapter 2 (Section 2.8.1.2), the response rates are relatively low. This reinforces the point that companies and practitioners in general are reluctant to participate in mail surveys, particularly in situations where there are no endorsements. Nevertheless, the absolute number of responses (130 in total) is sufficient (in comparison to several MCS studies¹²⁰) for carrying out the planned analysis. However, one negative consequence is that the LISREL technique appears not to be appropriate (in terms of number of observations and number of items/variables), as initially discussed in Chapter 2 (Section 2.8.3.4). An

¹²⁰ Refer to Appendix 2.6 and related discussion in Chapter 2 (Section 2.8.1.2). Virtually all the listed studies achieved an absolute number of responses between 37 and 159 (one exception being 358). The response rates ranged from 22% to 95% for both convenience and random sampling strategies.

analysis of returned questionnaires pre- and post-reminder did not indicate any pattern or significant differences in the responses.

6.1.2. Profile of Respondents.

An analysis of the profile of the respondents indicates that an overwhelming majority (95%) are male. They are primarily aged between 30 and 45 (50%) and more than 45 (43%). This is reflected in the level of experience where more than half of the respondents (52%) have 10 years or more experience in their current position and a further 21% have between 6 and 10 years experience. In terms of functional area being represented, there was almost an even mix of production/operations (56%) and sales/marketing managers (44%).

Insofar as the profile of the surveyed organizations is concerned, 66% of the respondents are located in companies having 100 to 500 employees. A further 22% come from companies having more than 500 and less than 1,000 employees. Finally, 12% of the respondents are from companies having more than 1,000 employees. To a large extent, this profile reflects the actual breakdown of targeted companies by size (refer to Appendix 5.1). Also, 52% of the respondents stated that their companies are subsidiaries and are part of a multinational group. Finally 46% of the respondents confirmed their companies are listed on a stock exchange. The stated profile of the companies does therefore indicate that the sample includes a substantial number of companies facing institutional and regulatory pressures (i.e. stock exchange rules, corporate governance, public shareholders) and issues relating to the management of multinationals.

In conclusion to this section, the response rate is an acceptable one but remains low, in spite of the application of methods recommended in the mail survey literature. However, there are sufficient responses to carry out the study, and on which to evaluate the data reliability and validity.

6.2. Reliability/Validity and Descriptive Statistics

As stated by Kwok and Sharp (1998, p. 137), a key methodological concern in behavioural accounting research is good construct measurement. This is particularly

critical in the case of mailed questionnaire surveys because the researcher is not in direct contact with the respondent and cannot directly intervene to avoid interpretation problems. Two of the key procedures in MCS studies to assess construct validity and reliability are principal components analysis (PCA) and the Cronbach Alpha test¹²¹.

According to Kwok and Sharp (1998) and DeCoster (2003), there are conceptual differences between PCA and exploratory factor analysis (EFA). Whilst PCA is viewed as a data reduction procedure, EFA seeks to determine the number of common factors influencing a set of measures and the strength of the relationship between each factor and each observed measure (DeCoster, 2003, p. 3-4). Furthermore, Newsom (2003) argues that although PCA is the default exploratory factor analysis procedure in most statistical packages, it is deemed not to be a true EFA procedure because it assumes no measurement error. He also argues that PCA can give poor estimates of the population loadings in small samples. However, with larger samples, most approaches will have similar results (Newsom, 2003; Osborne et al., 2004). But the sample size definition is itself an unsettled issue. For example, Froman (2001, p. 17) provides a range from 5 subjects per item with a minimum of 100 subjects regardless of the number of items, through a minimum of 200, up to 3 to 6 subjects per item with a minimum of 250. Osborne et al. (2004, p. 10) proposes higher subject to item ratios (more than 20:1) and more than one thousand subjects to reduce error rates. This clearly raises an issue in the context of this study (and several previous ones – see Section 2.8.1.2) since the usable sample sizes are rarely as large as stated. The factor loadings for all the variables (except RAPM) are provided in Appendix 6.1 and are deemed at reasonable levels, as per Nunnally (1978).

In addition, the presence of common-rater bias was verified using Harman's (1967) single factor test. All the items were simultaneously entered into an exploratory factor analysis. Since no single or common factor emerged from the factor analysis, there is thus little evidence that the analysis based on the responses will be subject to a common rater bias. This is a common technique used in various MCS studies (e.g. Hartmann, 2005; Naranjo-Gil and Hartmann, 2007).

¹²¹ Although there are more robust techniques such as Confirmatory Factor Analysis (CFA), the required number of observations would generally need to be more than 200 (Van der Stede, 2000, 2001)

6.2.1. Standard Operating Procedures (SOP)

Items (Question 1)	Valid Responses	Min.	Max	Mean	S. Dev.
(a) Purchase of Capital Equipment	128	1	5	4.05	1.118
(b) Hiring and Firing of Personnel	128	1	5	4.02	0.960
(c) Procurement of Inputs (Raw Materials, Consumables or Other Regular Expenses)	130	2	5	4.02	0.919
(d) Operating Procedures, Time Plans and Schedules	129	1	5	3.94	0.933
(e) Making tradeoffs within the line items of your department's current period budget	119	1	5	2.93	1.118
<i>Table 6.2: Descriptive Statistics for Standard Operating Procedures items</i>					

Whilst a high level of SOP was noted for items (a) to (d), there was a lower level of SOP for item (e). This perhaps denoted some ambiguity and technicality in the wording, particularly for managers in non-accounting functions. Nevertheless, all items factored into one construct as expected and as a result the variable “Standard Operating Procedures” (SOP) was obtained by a simple average of the five items. The skewness and kurtosis statistics (standard errors in italics) indicate a normal distribution (i.e. they lie between -1 and 1), as show in with the remaining descriptive statistics in the following summary panel:

Summary Panel: Standard Operating Procedures	
Mean: 3.833	Standard Deviation: 0.9142
Minimum: 2.00	Maximum: 5.00
Skewness: -0.573 (0.212)	Kurtosis: -0.624 (0.422)
Cronbach Alpha: 0.712	

6.2.2. Budgetary Participation (BP)

Items (Questions 2 to 7)	Valid Responses	Min.	Max	Mean	S. Dev.
Extent of your involvement in the budget setting process..	127	1	5	4.50	0.786
Which best describes the reasoning provided by....	117	1	5	3.74	0.822
How often do you voluntarily state your opinions.....	129	2	5	4.24	0.818
How much influence do you feel that you have....	129	1	5	3.95	0.917
How important is your participation to you securing..	127	1	5	4.36	0.803
How often does your supervisor seek your	123	2	5	4.14	0.843

Table 6.3: Descriptive Statistics for Budgetary Participation items

In the case of budgetary participation items, the mean scores indicate that managers perceive they have a fairly high level of involvement and influence in their department's budget setting process. However, the factor analysis generated two components. In particular, the third and sixth item (Questions No. 4 and 7) did not factor significantly with the others. This is quite surprising considering the long-standing use and validation of Milani's (1975) items to estimate the level of budgetary participation. Both questions were related to the expression of opinions. The respondents may have believed these to be less influential in their understanding of 'participation in the budgeting process' and which indeed could be simply viewed as giving 'opinions'. In consideration of this, the budgetary participation construct was therefore based on the average of the remaining 4 items i.e. Questions 2, 3, 5 and 6. The skewness and kurtosis statistics (standard errors in italics) indicate a normal distribution (i.e. they lie between -1 and 1), as shown in the following summary panel:

Summary Panel: Budgetary Participation (BP - 4 items only)	
Mean: 4.2199	Standard Deviation: 0.81683
Minimum: 1.50	Maximum: 5.00
Skewness: -0.836 (0.213)	Kurtosis: 0.615 (0.423)
Cronbach Alpha: 0.759	

6.2.3. Reliance on Accounting Performance Measures (RAPM)

Items (Question 8)	Valid Responses	Min.	Max	Mean	S. Dev.
(a) The effort I put into my job	129	1	5	4.14	0.836
(b) My concern with quality	129	1	5	4.08	0.880
(c) My contribution to company profits	129	1	5	4.39	0.774
(d) The relationships I have established with fellow staff	129	1	5	3.82	0.964
(e) How efficiently I run my unit	129	1	5	4.36	0.717
(f) How well I get on with my supervisor(s)	126	1	5	3.49	0.883
(g) How well I meet the budget	126	1	5	4.24	0.853
(h) Customer service ratings	123	1	5	3.89	0.957
(i) My attitude toward my work	128	1	5	4.22	0.887
(j) How well I develop a team	129	1	5	4.14	0.864

Table 6.4: Descriptive Statistics for RAPM items

As in the case of Budgetary Participation (BP), reliance on accounting data in the performance evaluation criteria applicable to (and as perceived by) subordinate managers has been an extensively researched MCS sub-system since Hopwood (1972). However, unlike BP, there have been several attempts to measure more “accurately” this construct and based on recent comparison studies (e.g. Otley and Fakiolas, 2000; Vagneur and Peiperl, 2000), this study adopts the ‘Likert importance scores’ rather than the ‘traditional’ ranking approach.

From Table 6.4, one can note a very substantial to high perceived importance attached to all dimensions, except for item (f). This is possibly a reflection of the increasing emphasis of non-financial measures in organizations. For example, the balanced scorecard approach and strategy-led measures such as KPIs (Key Performance Indicators) could have been an influential factor in the responses. Based on the measurement method in Harrison (1992, 1993) - sum of two accounting scores (items (c) and (g)) divided by sum of 8 non-accounting scores multiplied by 4 - the following descriptive statistics are provided in the summary panel. Again the skewness and kurtosis statistics (standard errors in italics) indicate a normal distribution (i.e. they lie between -1 and 1), as shown in the following summary panel:

Summary Panel: Reliance on Accounting Performance Measures (RAPM)	
Mean: 1.1052*	Standard Deviation: 0.25534
Minimum: 0.35	Maximum: 2.00
Skewness: 0.125 (0.212)	Kurtosis: 0.958 (0.423)
* A score of 1 indicates that accounting and non-accounting criteria have equal importance	

6.2.4. Dysfunctional Behaviour (DB)

Items (Question 11)	Valid Responses	Min.	Max	Mean	S. Dev.
(a) Certain job-related activities can be safely	130	1	6	3.15	1.463
(b) In certain cases, tasks can be subtly adjusted to align....	130	1	6	3.12	1.429
(c) Management control systems do not cause	130	1	6	2.44	1.294
(d) Managers tend to emphasise data that	129	1	6	4.22	1.312
(e) Managers tend to avoid being the bearer of bad....	129	1	6	3.71	1.400
(f) Most managers will place high importance on their.....	126	1	6	3.78	1.356
(g) Managers choose to present information that	129	1	6	3.80	1.214
Table 6.5: Descriptive Statistics for Dysfunctional Behaviour Items					

Table 6.5 displays the descriptive statistics for the items used to measure dysfunctional behaviour. The first three items were expected to factor into the sub-dimension of gaming (DBGA) and the last four items into the second sub-dimension – information manipulation (DBIN), and this is confirmed by the factor analysis (oblique rotation). The use of a more general set of statements (i.e. focusing on managers and using agree/disagree to proxy for extent of behaviours) was justified in the earlier chapters in a bid to elicit more reliable and less ethically-motivated responses. The mean scores already show some differences on the group of items purported to reflect the two sub-dimensions of dysfunctional behaviour i.e. a higher agreement (hence extent) is apparent for information manipulation items compared to the gaming items. There is a low number of non-responses and this is especially encouraging if one considers the nature of the questions and the forced choice Likert-scale.

On a closer inspection however, the reliability for DBGA barely reaches an acceptable level and there are probably some elements of ambiguity in the statements which could

have influenced the scores. On the other hand, the information manipulation dimension appears quite robust. For the sake of completeness, the descriptive statistics are also provided for the broader construct of ‘dysfunctional behaviour’ in the following summary panel. The skewness and kurtosis statistics (standard errors in italics) indicate a normal distribution (i.e. they lie between -1 and 1):

Summary Panel: Dysfunctional Behaviour Variables	
<u>Dysfunctional Behaviour – Gaming (DBGA)</u>	
Mean: 2.9687	Standard Deviation: 0.99220
Minimum: 1.00	Maximum: 5.33
Skewness: 0.307 (0.212)	Kurtosis: -0.719 (0.422)
Cronbach Alpha: 0.607	
<u>Dysfunctional Behaviour – Information Manipulation (DBIN)</u>	
Mean: 3.8827	Standard Deviation: 1.09776
Minimum: 1.00	Maximum: 6.00
Skewness: -0.461 (0.212)	Kurtosis: -0.481 (0.422)
Cronbach Alpha: 0.847	
<u>Dysfunctional Behaviour (DB - 7 items combined)</u>	
Mean: 3.5039	Standard Deviation: 0.87272
Minimum: 1.57	Maximum: 5.29
Skewness: -0.303 (0.212)	Kurtosis: -0.669 (0.422)
Cronbach Alpha: 0.779	

6.2.5. Task Uncertainty (TU)

As explained in the previous chapter, items (a), (c) and (d) are related to the ‘task analysability’ dimension whilst items (b), (e) and (f) seek to capture the ‘task exception’ dimension. The responses to all the questions were reverse coded and hence the scores in Table 6.6 reflect ‘task uncertainty’ as 1-low and 5-high. Whilst there is some consistency in the mean scores for task analysability, there are some marked differences in the perceptions of task exception. The factor analysis identified two components but not according to the exception/analysability dichotomy. In fact, items (a) to (d) factored into one component whilst the two final items (e) and (f) strongly

factored in another item. A correlation matrix between the six items also revealed very poor correlation coefficients between the first four items and the last two ones.

There is a possibility that the wording and the formatting (i.e. separate headings used) of the last two questions may have influenced these differences. As can be seen from Figure 5.5 (Chapter 5), the last two items were headed separately and referred to “people in the department” and “departmental members”. This was in contrast to the first four items which were addressed specifically to the respondent. Hence, the degree of task uncertainty may have been differently perceived. Since the study is seeking perceptions from the manager’s point of view, it would be appropriate to use the first four items only. In addition and based on the data, there does not seem to any significant difference between the exception and analysability dimensions.

Items (Question 9) reverse coded	Valid Responses	Min.	Max	Mean	S. Dev.
(a) To what extent is there a clearly defined body.....?	128	1	5	3.05	1.064
(b) To what extent would you think that your work is.....?	129	2	5	3.43	0.788
(c) To what extent is there a clearly known way to....?	127	1	5	2.91	0.921
(d) To what extent is there an understandable sequence...?	129	1	5	2.97	0.984
(e) People in the department perform routinely.....	128	1	5	2.56	0.962
(f) Departmental members perform repetitive activities in doing their jobs.	129	1	5	2.71	1.002

Table 6.6: Descriptive Statistics for Task Uncertainty Items

As a result, the descriptive statistics for the TU construct are provided in the following summary panel. The skewness and kurtosis statistics (standard errors in italics) indicate a normal distribution (i.e. they lie between -1 and 1):

Summary Panel: Task Uncertainty (TU) – First 4 items only	
Mean: 3.1141	Standard Deviation: 0.69281
Minimum: 1.50	Maximum: 4.50
Skewness: -0.171 (0.212)	Kurtosis: -0.760 (0.422)
Cronbach Alpha: 0.710.	

6.2.6. Superior’s Interactive ‘and’ Diagnostic Use of Controls

Table 6.7 provides the descriptive statistics for the four items used in the study. The first two (interactive use) were selected from Abernethy and Brownell’s (1999) study and the last two items were developed from the literature and purport to capture the diagnostic use of controls.

Items (Question 10)	Valid Responses	Min.	Max	Mean	S. Dev.
(a) As a means of questioning and debating the.....	124	1	6	4.01	1.358
(b) As a continuous process, which demands your	125	1	6	3.98	1.283
(c) By delegating staff specialists (e.g. accounting)....	130	1	6	3.70	1.381
(d) By infrequently looking at the detailed.....	130	1	6	3.16	1.411

Table 6.7: Descriptive Statistics for Supervisor’s Use of Controls

The mean scores indicated general agreement (particularly the first three items) by the respondents that they perceive their supervisors to be using the various control systems in both an interactive as well as in a diagnostic mode. This suggests the possibility that an ‘interactive to diagnostic’ spectrum is not strictly present in this study. This is in contrast to the measurement of ‘interactive budget use’ in Abernethy and Brownell (1999) since it ignored the possibility that a ‘high’ response to the items did not necessarily mean that the respondents perceived a ‘low’ diagnostic budget use. The validation classification statement they used (1999, p. 202) to corroborate with the Likert-based questions was very long and ambiguous and although there was a significant correlation between the statement and the Likert-items, it should have, intuitively, been much higher (0.41, 1999, p. 196). Furthermore, Van der Stede (2001) was also unable to empirically validate the interactive vs. diagnostic use of controls.

In a way, the above is reminiscent of the arguments and discussion on the measurement of RAPM (use of accounting versus non accounting data for performance evaluation) i.e. a simple mean score of the importance of accounting data is not sufficient to reflect a ‘reliance’ on accounting performance measures since it is not relative to the mean scores for non-accounting data. So, two possible measurement solutions were explored at this point and these are detailed in the following summary panel:

Option (a) to consider interactive (a & b) and diagnostic (c & d) measures separately i.e. and investigate their relationships, OR Option (b) to intuitively apply the same measurement method adopted by Harrison (1992, 1993) for RAPM and express the level of interactive use of controls as a ratio of the level of diagnostic use, whereby a unity score indicate an equal interactive and diagnostic use of controls by the superior.

Summary Panel: Interactive and Diagnostic Use of MCS by Superior	
<u>Option (a) (i) Interactive Use of Controls (INT)</u>	
Mean: 3.9308	Standard Deviation: 1.15764
Minimum: 1.00	Maximum: 6.00
Skewness: -0.605 (0.212)	Kurtosis: -0.469 (0.422)
Cronbach Alpha: 0.739	
 <u>(ii) Diagnostic Use of Controls (DIA)</u>	
Mean: 3.4180	Standard Deviation: 1.06071
Minimum: 1.00	Maximum: 6.00
Skewness: -0.108(0.214)	Kurtosis: -0.685 (0.425)
Cronbach Alpha: 0.224	
 <u>Option (b) Interactive use of MCS (relative to diagnostic use) (IND)</u>	
Mean: 1.2941*	Standard Deviation: 0.68219
Minimum: 0.25	Maximum: 6.00
Skewness: 3.070 (0.214)	Kurtosis: 17.836 (0.425)
* A score above 1 indicates a higher level of interactive use of MCS relative to its diagnostic use.	

In the absence of any prior evidence, both measurement options were estimated and considered. The factor analysis (oblimin rotation) identified two separate components (i.e. item (a) and (b) factoring together – known as INT - as well as (c) and (d) separately – known as DIA). Whilst the Cronbach Alpha for INT was quite satisfactory (0.739), the score for DIA was quite low (0.224). Also, there is a very high skewness and kurtosis for the interactive variable expressed as a ratio of the diagnostic variable (INT/DIA). In both options, however, the descriptive statistics do reflect a significantly higher interactive use of MCS as perceived by the subordinate manager. In view of the low reliability score for DIA and the non-normality of the variable INT/DIA, this study

will focus on INT, strictly as a measure of the level of interactive use of controls (Option (a)(i)). The statistics also appear to bring some support to more recent discussions on the interactive and diagnostic styles in the use of controls, highlighted in Henri (2006). These will be considered subsequently.

6.2.7. Legitimizing Nature of Controls

Of particular interest to the institutional-based model (Model 2), ‘the legitimizing nature of controls’ (LNC) is an attempt at designing an empirical construct to capture the influence of the various institutional processes from a managers’ perspective. The functional managers were deemed to be appropriate respondents as they ‘represented’ a clearly defined subunit within an organization and as such had some overall responsibility for the activities of the subunit. A higher level of agreement with the statements will indicate that the managers have perceived a higher level of legitimacy within the organization.

Items (Questions 12 to 14)	Valid Responses	Min.	Max	Mean	S. Dev.
An emphasis on the carrying out of the following control functions..... (a) SOP	128	1	6	2.81	1.379
(b) BP	126	1	6	2.63	1.331
(c) RAPM	128	1	6	2.90	1.391
The following control functions serve as ways of creating or(a) SOP	127	1	6	3.01	1.445
(b) BP	126	1	6	2.90	1.377
(c) RAPM	127	1	6	3.06	1.444
When the following control functions have been prescribed.....(a) SOP	125	1	6	3.81	1.401
(b) BP	124	1	6	3.80	1.343
(c) RAPM	125	1	6	3.72	1.305
Table 6.8: Descriptive Statistics for Legitimizing Nature of Controls (LNC) items					

From Table 6.8, three points can be noted. Firstly, there are similar mean scores for all types of MCS thereby suggesting, as expected, a general view and perception on all control systems and there is no discernable difference in opinion between SOP, BP and RAPM. Secondly, the mean responses to questions 12 and 13 are quite similar and in fact tend towards a slight level of disagreement to the statements - whilst bearing in mind the relatively large level of standard deviation. In other words, there is a notable

perception that conformity to control functions did not compromise the department's achievements nor do they re-assert hierarchical patterns of responsibility. Thirdly, the significantly higher level of agreement for Question 14 appears odd in comparison to the previous responses and it may be possible that the last question suffered from some ambiguity and a loaded term ('faithfully'). In light of the above points, the LNC variable will consist of the six items from Questions 12 and 13 only. The skewness and kurtosis statistics (standard errors in italics) indicate a normal distribution (i.e. they lie between -1 and 1):, as provided in the following summary panel:

Summary Panel: Legitimizing Nature of Controls (LNC)	
Mean: 2.8918	Standard Deviation: 1.07474
Minimum: 1.00	Maximum: 6.00
Skewness: 0.471 (0.212)	Kurtosis: 0.021 (0.422)
Cronbach Alpha: 0.847.	

6.2.8. Differences in Means: Some Comparisons.

At this stage, it would be relevant to identify and assess any significant differences in the mean scores of the seven constructed variables, based on previously researched 'contingent variables' such as functional area, company size and mode of ownership.

The variables per functional area were then estimated using the technique of independent samples t-test and no significant differences were noted. Whilst there were no significant differences noted for size, stock market listing and status (subsidiary or not), there was one interesting instance of variability when considering the ownership structure of the organization (i.e. is the company a subsidiary and is it part of a multinational group?). Respondents operating within a multinational set up showed a higher mean score for SOP (4.0134 compared to 3.6191, $p = 0.023$) and a lower score for DBIN (3.7438 compared to 4.1702, $p = 0.034$). In a limited way, this demonstrates the influence of multinational business and foreign ownership/participation on some instances of MCS i.e. the use of a more SOP in the case of multinational groups to ensure cohesion and the transfer of know-how/skills. The lower DBIN score for companies found in multinational groups is also of interest as it could indicate the existence of a more restrictive set, or a more consistent use, of controls in this category of companies.

Nevertheless, and save for the possible influence of multinational ownership as detailed above, the extent of the differences arising from the other factors are quite minimal and apply to one variable only. There is therefore support in using the whole data set (pre- and post-reminder) for further investigating the key hypotheses in Models 1 and 2. On the basis of the results obtained, and subject to significant sample sizes, the identified differences can then be considered in more detail.

6.2.9. Correlation Matrix

Prior to applying the path analysis and interaction techniques, a bi-variate correlation matrix is estimated to draw out any initial evidence of relationships between the selected variables of interest. Table 6.9 only shows the significant correlation coefficients (in bold, at $p < 0.01$ and $p < 0.05$ level).

	SOP	BP	RAPM	DB	DBGA	DBIN	TU	INT	LNC
SOP	1.00								
BP	<u>.323</u>	1.00							
RAPM	-.070	.031	1.00						
DB	<u>-.241</u>	<u>-.328</u>	<u>.374</u>	1.00					
DBGA	<u>-.331</u>	<u>-.271</u>	<u>.277</u>	<u>.740</u>	1.00				
DBIN	-.106	<u>-.282</u>	<u>.343</u>	<u>.890</u>	<u>.359</u>	1.00			
TU	<u>-.202</u>	<u>-.235</u>	.036	<u>.203</u>	<u>.180</u>	<u>.174</u>	1.00		
INT	<u>.271</u>	<u>.211</u>	<u>.291</u>	<u>.253</u>	<u>.189</u>	<u>.212</u>	-.045	1.00	
LNC	-.143	-.132	-.051	.125	.130	.082	-.106	.169	1.00

Table 6.9: Correlation Matrix (Pearson's)

Bold and underlined coefficients are significant at $p < 0.01$

Bold only coefficients are significant at $p < 0.05$

The correlation matrix does indicate the existence of significant positive and negative coefficients between the MCS variables, the contingent variables and the dysfunctional behaviour variables. There is therefore preliminary evidence to investigate the relationship models. The first hypotheses (H1 to H14) are purely direct and simpler tests of relationships and will thus serve as a basis to explore the intervening and moderating models.

6.3. Direct Effects (Hypotheses 1 to 14)

Using simple regression analysis, the direct relationships between each aspect of the MCS and the various forms of dysfunctional behaviour (H1 to H6) and between each aspect of the MCS and the two identified contextual variables (H7 to H12) are considered.

6.3.1. Direct Effects: MCS to Dysfunctional Behaviours

The first two hypotheses consider the separate effects of SOP on the two forms of dysfunctional behaviour and the summary results for the two regressions are shown in Table 6.10:

Independent Variable (SOP)	Dependent Variable	
	DBGA (H1)	DBIN (H2)
SOP Standardized Coefficient (t-statistics in parentheses)	-0.331 (-3.962)**	-0.106 (-1.203) ^{ns}
R ²	10.9%	1.1%
F-value	15.697**	1.447 ^{ns}
Table 6.10: Regression Results (SOP - H1 and H2)		
** significant at 1% level or less and ^{ns} is not significant		

It is sometimes argued – often in anecdotal terms - that prescriptive or “rule-book” control mechanisms (i.e. SOPs) tend to stifle managers’ initiatives and curb their ability to operate with flexibility. Whilst the usefulness of SOPs in preventing frauds or widespread abuse of resources by management (e.g. internal controls) is not put into question, the argument had been that managers may engage into gaming activities with a view to influence their departmental outcomes and that SOPs could play a role in controlling such behaviour (H1). From Table 6.10, the results show a significantly negative relationship ($\beta = -0.331$) between managers’ extent of gaming and SOPs, therefore confirming the original expectations that SOPs are effective in limiting gaming practices. Also, as predicted in H2, the prescriptive nature of SOPs was not expected to impact significantly on the managers’ extent of information manipulation. In spite of an observed negative coefficient, the latter was not statistically significant and the R² is also very minimal.

The second pair of hypotheses was related to the effects of budgetary participation on dysfunctional behaviour. Table 6.11 provides the regression statistics for the relationships between BP and DBIN and BP and DBGA respectively.

Independent Variable (BP)	Dependent Variable	
	DBIN (H3)	DBGA (H4)
BP Standardized Coefficient (t-statistics in parentheses)	-0.282 (-3.327)**	-0.271 (-3.184)**
R ²	8.0%	7.3%
F-value	11.069**	10.141**
Table 6.11: Regression Results (BP - H3 and H4)		
** significant at 1% level or less		

On the basis of past evidence, budgetary participation was perceived to be enhancing information manipulation behaviours (H3). However, the results indicate a significant but opposite relationship ($\beta=-0.282$). This seems to show that budgetary participation has positive consequences in an organization in the way of influencing managers' towards lesser manipulation of the information provided. There was already evidence of its positive links with performance and motivation but now there is some evidence towards its impact in dampening the managers' extent of dysfunctional behaviour. This is in some way reminiscent of the previous debates relating to the positive impacts of budgetary participation on slack behaviour. If one considers that the information manipulation measure was 'constructed' as a general measure of managerial dysfunctional behaviour - and not just specifically linked to the budgetary process- there is the possible explanation that budgetary participation, as a control mechanism, is having a much wider and positive impact on a manager's overall behaviour and intentions towards engaging in dysfunctional activities.

In the case of H4, there was similarly a hypothesized direction in terms of the positive relationship between BP and Gaming. However, the significant results appear to add weight to the analysis made of the previous paragraph on the 'favourable' effects of high budgetary participation ($\beta=-0.271$). Therefore, as initially explained in the hypothesis section, a high level of budgetary participation seems to show an internalization of the budget targets and having already influenced to some extent these targets, there is less intention and motivation to engage into gaming practices. On the

other hand, a low level of participation will be perceived as targets being imposed on managers and they may react accordingly in terms of adopting policies or actions strictly to meet the budget but with negative consequences on the department's activities and processes.

The final set of hypotheses in this section considers the effects of RAPM on dysfunctional behaviour. Table 6.12 displays the relevant results for both dependent variables i.e. DBIN and DBGA.

Independent Variable (RAPM)	Dependent Variable	
	DBIN (H5)	DBGA (H6)
RAPM Standardized Coefficient (t-statistics in parentheses)	0.343 (4.131)**	0.277 (3.267)**
R ²	11.8%	7.7%
F-value	17.064**	10.676**
Table 6.12: Regression Results (RAPM - H5 and H6)		
** significant at 1% level or less		

The previously observed 'positive' effects of BP and SOP do not appear to extend to the RAPM control mechanism. The latter, which implied control attributes such as the focus on short-term orientation and outcome vs. process basis, were hypothesized to encourage dysfunctional behaviours such as information manipulation (H5). The evidence from this study indicates a highly significant positive relationship ($\beta=0.343$) and therefore confirmation of the initial hypothesis. The fact that certain organizations continue to rely more on budget-based measures for performance appraisal in contrast to other non-accounting measures seems to lead managers into a 'creative accounting mode' whereby managers would attempt to manipulate numbers or reports to ensure adherence to expectations. This finding can be linked to the information asymmetry paradigm that negatively influences the flow of reliable information to higher levels of management. As in the documented research and cases involving directors' use of discretion to influence their annual report numbers to shareholders (e.g. Watts and Zimmerman, 1990; Lev., 2003), the existence of an internal information manipulation context in a high RAPM environment is bound to create inefficiencies in terms of misguided decisions and sub-optimal performance.

Insofar as H6 is concerned, it was argued that a higher reliance on RAPM could lead to more gaming practices by managers. As in the case of DBIN, RAPM was found to have a direct and positive effect on the managers' extent of gaming ($\beta=0.277$). The coefficient and model for DBGA is slightly weaker than the DBIN one. To some extent, this could be explained by the previous findings, namely the positive relationship between RAPM and information manipulation. Indeed, if managers react to higher reliance on accounting measures by engaging in information manipulation actions, then there is a possible 'knock-on effect' of being less inclined to engage in gaming practices.

In conclusion to this section, the regression results have highlighted an interesting but diverse set of results, namely that individual MCS sub-systems do appear to have different degrees of effect (or non effect) on the forms of dysfunctional behaviour. Also, some of the results are supportive of the initial hypotheses proposed whilst others have produced significant relationships but in the opposite direction to expectations. Some the implications of these findings are discussed in Section 6.7.2. The next section will now consider the individual direct effects of the selected contextual variables on the different MCS and on the final dependent variables (DBIN and DBGA).

6.3.2. Direct Effects – Contextual Variables to MCS and DB

The first two direct effects hypotheses involving the selected contextual variables consider the independent variables of task uncertainty (TU) and superior's interactive use of controls (INT) on SOP.

<u>Dependent Variable: (SOP)</u>	Independent Variable	
	TU (H7)	INT (H8)
Standardized Coefficient for Independent Variable (t-statistics in parentheses)	-0.202 (-2.329)*	0.271 (3.190)**
R ²	4.1%	7.4%
F-value	5.422*	10.176**
Table 6.13: Regression Results (TU & INT on SOP- H7 and H8)		
*significant at 5% level and ** significant at 1% level or less		

Table 6.13 presents the regression results for the relationships between TU and SOP as well as INT to SOP. As expected, H7 is supported i.e. a low task uncertainty environment will lead to a higher reliance on SOP, since SOPs can reliably provide and account for most of the situations and procedures faced by managers in the organization ($\beta=-0.202$). Conversely, one would expect a low level of SOP in a high task uncertainty situation since functional managers would then need to operate with more flexibility to address changes in the work patterns.

However, a result contrary to expectations emerges on the relationship between interactive style in using controls and SOP. It was initially hypothesised (H8) that a more coherent fit would exist between a diagnostic style in using controls and SOP. However, the measurement of interactive style was put into question and the original hypothesis cannot be tested.

The strong positive link here ($\beta=0.271$) suggests that an interactive style in using controls would lead to a higher use of SOPs. In view of the initial issues observed with the measurement of interactive/diagnostic styles, the other measures (IND and DIA) were also tested in this relationship but this did not yield any other significant result. The monitoring of SOPs in organizations is generally left to staff specialists but the results in this study could be influenced by respondents' profile i.e. functional managers. This issue will be discussed in more detail in a subsequent section (Section 6.7.2) but it appears that this result raises questions on the relevance of the interactive/diagnostic dichotomy to all layers of management (top, middle or functional).

BP is the next dependent variable of interest for the two selected contextual variables. In both hypotheses (H9 and H10), a positive relationship was predicted. Table 6.14 describes the regression results. In a more task uncertain environment, a greater level of involvement by the subordinate in the setting of targets was expected but the results showed a significantly negative relationship ($\beta = -0.235$). Whilst various authors concur on the 'information gap' consequences and issues relating to a high task uncertainty situation (e.g. Galbraith, 1973; Chapman, 1997), it was already acknowledged that empirical results have not been consistent in demonstrating the link between TU and control systems. Indeed, one may argue that a higher level of subordinate participation in setting targets may not be really helpful in situations of

high TU i.e. a higher level of subordinate participation in setting the budget implies the knowledge, skill and ability from the subordinate manager to respond to the high TU environment. This may not be applicable in all cases. Secondly, as Hartmann (2000) alludes to, managers may not feel compelled to participate if they are ‘shielded’ and effectively not made responsible for events and actions in a high task uncertainty situation (e.g. uncontrollable costs, last minute customized order). In both of these cases, the expected positive relationship may not be forthcoming and may to a certain extent reverse itself.

Dependent Variable: BP	Independent Variable	
	TU (H9)	INT (H10)
Standardized Coefficient for Independent Variables (t-statistics in parentheses)	-0.235 (-2.736)**	0.211 (2.437)*
R ²	5.5%	4.4%
F-value (significance)	7.484**	5.940*
Table 6.14 - Regression Results (TU & INT on BP - H9 and H10)		
*significant at 5% level and ** significant at 1% level or less		

For H10, the positive and significant relationship materialised ($\beta = 0.211$). This demonstrated a relationship between the features of an interactive style in using controls by top management and the subordinate’s extent of participation in the budget. The results provide confirmation of the expectations formulated in Simons (1994) and Abernethy and Brownell (1999) and also new evidence on the actual role of interactive style in the MCS area.

Table 6.15 details the regression results for the relationships between the contextual variables of TU and INT to RAPM. In both hypotheses (H11 and H12), a negative relationship was hypothesised. However, the coefficient for TU was positive and not significant whilst the INT regression showed a positive relationship ($\beta = 0.291$).

Dependent Variable: RAPM	Independent Variable	
	TU (H11)	INT (H12)
Standardized Coefficient for Independent Variables (t-statistics in parentheses)	0.022 (0.244) ^{ns}	0.291 (3.437) **
R ²	0.1%	8.4%
F-value	0.170 ^{ns}	11.810**
Table 6.15: Regression Results (TU & INT on RAPM - H11 and H12)		
** significant at 1% level or less and ^{ns} is not significant		

There is a historical and traditional reliance on accounting measures for performance evaluation in most private-sector organizations due to their initial presence for financial accounting and other regulatory-related purposes, and their dominance as the key performance measures for shareholders. In contrast, and despite their long standing ‘popularity’ in organizations, budgets and SOPs are not strictly the result of the same pressures. Hence, the perceptions in this study on the level of RAPM may well be unconnected to the TU variable, as was already noticeable from the correlation matrix. The positive link between INT and RAPM (i.e. a higher interactive use of controls is related to a higher use of RAPM) could also be interpreted by considering the impact of RAPM-based measures on the superior managers themselves. Given the traditional focus of accounting measures (as explained above), managers could interpret that an interactive style in the use of controls involves inherently a more ‘hands-on’ approach to accounting-based measures.

The last four hypotheses (H13a, H13b, H14a and H14b) were hypotheses formulated in the context of developing the path model. Given that the different MCS sub-systems are viewed as having an intervening effect between the contextual variables and dysfunctional behaviour (Model 1) and in view of the assumptions in Baron and Kenny’s (1986) criteria (explained in the next section), it follows that one should expect a significant observed relationship between the contextual variables (TU and INT) and DBIN and DBGA. The correlation matrix (Table 6.9) did find significant relationships (only at 5%) between the contextual variables and two forms of dysfunctional behaviour.

In the case of H13a and H13b, the positive relationships between TU and the two forms of dysfunctional behaviour materialized. This thus brings some support on the direct

effects - as opposed to the moderating effects - of TU on the extent of dysfunctional behaviour. The inherent complexity, ambiguity and confusion caused by task uncertainty can thus on itself provide the conditions for dysfunctional behaviours and is thus of interest to companies/organizations operating units/departments with relatively high uncertainty.

In the case of H14a and H14b however, the coefficients linking INT and the forms of dysfunctional behaviour were significant but in the opposite direction. In other words, a high level of interactive use of controls leads to a higher extent of dysfunctional behaviour. This is very significantly at odds with the recent research that an interactive use of controls operates more positively for the subordinate managers. However, it needs to be pointed out that the measurement of INT in this study is viewed as being independent of the diagnostic style of using controls i.e. higher INT does not necessarily mean a lower use of diagnostic controls.

In conclusion to this section, some significant relationships, but not necessarily hypothesised in the correct direction, were observed for BP, SOP and RAPM. As hypothesised earlier, there were some direct links between the contextual variables and the forms of dysfunctional behaviour. This now allows for considering the Model 1 results, using path analysis.

6.4. Model 1 Results: Using Path Analysis

6.4.1. Path Analysis

Path analysis is a statistical technique aimed at testing the direct, indirect (or intervening) and spurious effects of the situational variables (i.e. TU, INT) on the dependent variables (DB) via the management control systems (i.e. SOP, BP and RAPM). This technique has been extensively used in management control research (such as Chenhall and Morris, 1986; Chong and Chong, 1997; Nouri and Parker, 1998; Mia and Clarke, 1999; Bowens and Abernethy, 2000) to assess the significance of relationships between dependent and independent variables. This is also referred to as the intervening-variable model (Luft and Shields, 2003).

Path analysis is more formally known as a regression-path analysis (Wolfle, 2003) and as such it can be viewed as a straightforward extension of the multiple regression

technique and its aim is to provide estimates of the magnitude and significance of hypothesized causal connections between sets of variables (also refer to Sclove, 2001). One useful application of path analysis is to find the best regression model by elimination of variables that contribute little to the equation. Based on the use of regression and correlation analysis for coefficient estimations (Asher, 1983), the output of the path analysis is a series of path coefficients. These are standardized beta coefficients found by regressing the outcome variable on the appropriate antecedent variable(s).

In this respect, a path diagram is a graphical illustration of the pattern of causal relations among a set of variables and therefore in the first instance reflects the theoretical model. This model is then put to the test and the path coefficients are then analysed to reject or not reject the detailed hypotheses inherent to the theoretical model. According to Asher (1983), a general path coefficient is represented by symbol P with two subscripts – the first representing the effect and the second subscript representing the cause. Figure 6.1 provides a basic example:

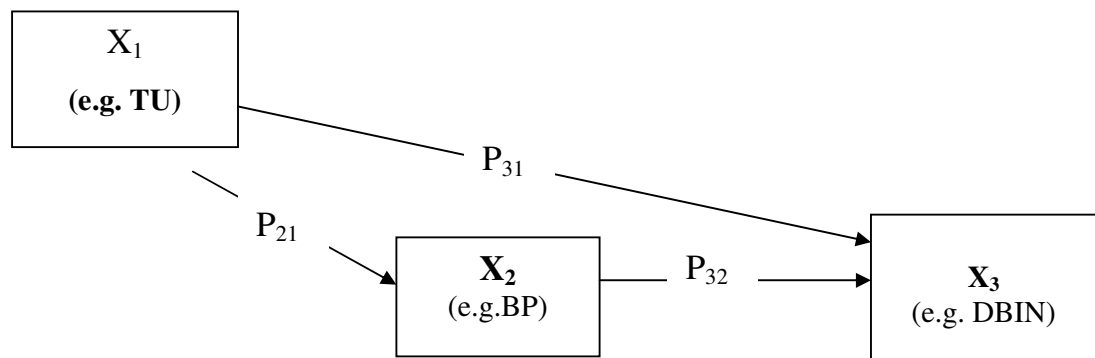


Figure 6.1: Illustration of Individual Path Diagram and Coefficients

The above path diagram depicts the direct and indirect effects of X_1 and X_2 on X_3 . The break-down of the total effect of one variable in the model on another is obtained using the computed path coefficients and the correlation coefficients. Hence, the observed correlation coefficient (r_{ji}) can be decomposed in a path analysis into the (1) Direct effects (P_{ij}), (2) the Indirect effects ($P_{ij} r_{ji}$) and (3) the spurious effects. If this is applied to the Figure 6.1 illustration, then the decomposition can be show in Table 6.16 below:

Combinations of variables	Observed Correlation	=	Direct Effects	+	Indirect Effects	+	Spurious Effects
X₁ to X₂	r ₁₂	=	P ₂₁				
X₂ to X₃	r ₂₃	=	P ₃₂				P ₃₁ r ₁₂
X₁ to X₃	r ₁₃	=	P ₃₁	+	P ₃₂ r ₁₂		

Table 6.16 – Illustration of Decomposition of Observed Correlations

After having completed the stage of estimating each of the coefficients, a formal criterion is applied to establish the significance of each indirect path (i.e. the intervening or mediating effect). The criteria were proposed by Baron and Kenny (1986) in conjunction with Sobel (1982, 1986). Firstly, Baron and Kenny (1986) formulated three essential conditions to establish the existence of a mediating relationship, namely (1) the independent variable (e.g. TU) and the mediating variable (e.g. BP) are significantly related; (2) the mediating variable and dependent variable (e.g. DBIN) are significantly related and (3) the relationship between the independent variable (e.g. TU) and the dependent variable reduces (e.g. DBIN) and becomes insignificant when the mediator is added to the model. In addition, Baron and Kenny (1986) argue that a full or perfect mediation occurs when a significant relationship between the independent variable and dependent variable is no longer significant after controlling for the effects of the intervening variable. On the other hand, a partial mediation occurs when the relationship between the independent variable and the dependent variable decreases, but remains significant after controlling for the intervening variables. In addition, a more recent development has been to assess the formal significance of the indirect effect using Sobel's (1982) test. MacKinnon et al. (1995 and 2002) and Preacher and Hayes (2004) argued that this procedure can provide a stronger assessment of the mediation. Essentially, the test is in the form of a z-score which is calculated by dividing the indirect effect (using unstandardized coefficients) by its standard error. None of the reviewed MCS studies estimate this score, except in the case of Nouri and Parker (1998).

Based on the above set of conditions, the path analysis procedure will involve calculating the standardized (beta) coefficients when considering each MCS sub-system

against the respective contextual variables and each form of dysfunctional behaviour to address the specific hypotheses detailed in H15 and H16. Then, Sobel's z-score will be estimated for each path. However, a first overall picture of the relevance of direct and indirect effects for all the MCS sub-systems, contextual variables and forms of dysfunctional behaviour can be shown by considering all the path coefficients.

6.4.2. Path Analytic Model: Overall Effects

Table 6.17 provides the summary regression results relevant to the estimation of an overall set of the direct and indirect relationships. It is noted that the R^2 can be quite low in some cases but as stated in Joshi and Rai (2000), a low R^2 in such an intervening model does not undermine the results.

Dependent Variable	Independent Variable	Path Coefficient	t-value	p-value (sig.)	R ² (F Test)
DBIN	SOP	-0.023	-0.267	0.790	24.7% (8.124)**
	BP	-0.303	-3.587	0.000	
	RAPM	0.288	3.494	0.001	
	TU	0.097	1.198	0.233	
	INT	0.202	2.346	0.021	
DBGA	SOP	-0.306	-3.610	0.000	27.4% (9.369)**
	BP	-0.217	-2.618	0.010	
	RAPM	0.182	2.251	0.026	
	TU	0.072	0.907	0.366	
	INT	0.268	3.165	0.002	
SOP	TU	-0.190	-2.264	0.025	11.2% (7.816)**
	INT	0.263	3.136	0.002	
BP	TU	-0.226	-2.675	0.008	9.5% (6.692)**
	INT	0.200	2.373	0.019	
RAPM	TU	0.050	0.584	0.560	8.7% (6.045)**
	INT	0.293	3.450	0.001	

Table 6.17: Results of Overall Regressions
 ** significant at 1% level or less

For the five multiple regressions run above, the collinearity statistics (Variance Inflation Factors - VIF) for each independent variable were close to 1 (0.80 to 1.2)

indicating a relatively low level of multi-collinearity (from Gujarati, 2003 and Abernethy and Brownell, 1999, p. 197) and not exceeding 10 (Hair et al., 1998). Based on the above regression results, an overall path analytic model is graphically shown in Figure 6.2. The important aspect that is noted is the absence of any direct significant relationships between the task uncertainty variable and the two instances of dysfunctional behaviour. The indirect paths are now driving the model and the intervening role of MCS sub-systems – RAPM and BP more specifically - is now more visible. On the other hand, there are two instances of non-significant paths, namely the TU-RAPM path and the SOP to DBIN path. Also, the direct effects of INT on DBIN and DBGA remain quite significant and have the potential to outweigh the hypothesised intervening effect of MCS sub-systems (for INT).

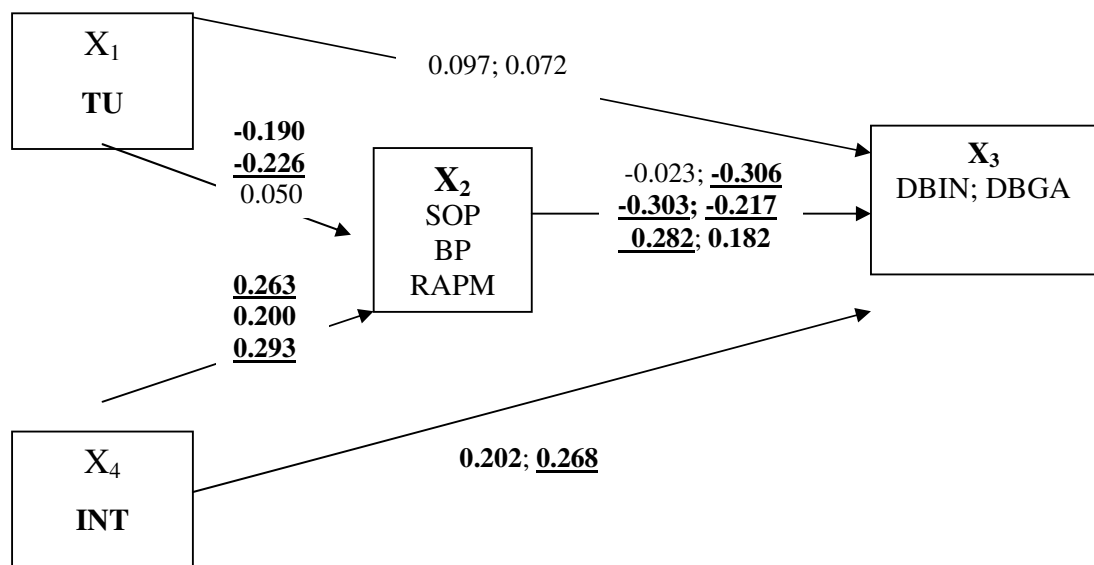


Figure 6.2: Overall Path Analytic Model

(Coefficients bold underlined are significant at 1% whereas those in bold only are significant at 5%)

The hypotheses consider the more specific and individual indirect effects of control-subsystems in mediating the impact between contextual variables and dysfunctional behaviour. This therefore calls for a more in-depth assessment and examination of the intervening effects for each contextual variable, control sub-system and dysfunctional behaviour variable.

6.4.3. Investigating Model 1a (Task Uncertainty only)

The sub-hypotheses in H15 argue that each control sub-system has a significant intervening effect on the relationship between task uncertainty and dysfunctional behaviours. There are therefore 6 potential individual paths (e.g. TU-SOP-DBIN) to be tested i.e. 2 DB variable x 3 control sub-systems for the task uncertainty context, although the overall path model already shows that some paths may not be significant (e.g. TU-RAPM-DBIN or DBGA). Consistent with the procedures adopted in Bouwens and Abernethy (2000), the following regressions equations were estimated (Equation 6.1 and 6.2):

$$X_{2(i)} = P_{21(i)} X_1 + P_{2u(i)} S_{u(i)} \quad \text{[Equation 6.1]}$$

$$X_{3(j)} = P_{31(j)} X_1 + P_{32(i)(j)} X_2 + P_{3v(j)} S_{v(j)} \quad \text{[Equation 6.2]}$$

Where:

X_1 = Task Uncertainty (TU)

$X_{2(i)}$ = MCS sub-systems ($i = 1 \dots 3$) = SOP, BP and RAPM

$X_{3(j)}$ = Dysfunctional Behaviours ($j = 1,2$) = DBIN and DBGA

$P_{21(i)}$, $P_{31(j)}$ and $P_{32(i)(j)}$ = path coefficients for explanatory variables

$P_{2u(i)}$ and $+ P_{3v(j)}$ = path coefficients for unexplained variances

$S_{u(i)}$ and $+ S_{v(j)}$ = error variables.

Although estimated in a different context, the direct effects coefficients from Equation 1 ($P_{21(i)}$) were already calculated in Section 6.3.2 (Contextual variables to MCS). Hence, Table 6.18 displays the results for Equation 6.2 and for completeness purposes reproduces the results applicable to Equation 6.1.

Dependent Variable	Independent Variable	Coefficient	t-value	p-value (sig)	R ² (F-value)
<u>Equation 6.2 Coefficients and Statistics</u>					
DBIN	SOP (P ₃₂)	-0.074	-0.827	0.410	3.6%
	TU (P ₃₁)	0.160	1.794	0.075	(2.346) ^{ns}
DBIN	BP (P ₃₂)	-0.255	-2.934	0.004	9.2%
	TU (P ₃₁)	0.114	1.316	0.191	(6.432)**
DBIN	RAPM (P ₃₂)	0.337	4.103	0.000	14.4%
	TU (P ₃₁)	0.162	1.974	0.051	(10.673)**
DBGA	SOP (P ₃₂)	-0.307	-3.615	0.000	12.3%
	TU (P ₃₁)	0.118	1.387	0.168	(8.867)**
DBGA	BP (P ₃₂)	-0.242	-2.776	0.006	8.8%
	TU (P ₃₁)	0.123	1.407	0.162	(6.098)**
DBGA	RAPM (P ₃₂)	0.271	3.321	0.002	10.6%
	TU (P ₃₁)	0.170	2.021	0.045	(7.508)**
<u>Equation 6.1 Coefficients and Statistics</u>					
SOP	TU (P ₂₁)	-0.202	-2.329	0.021	4.1%
BP	TU (P ₂₁)	-0.235	-2.736	0.007	5.5%
RAPM	TU (P ₂₁)	0.036	0.412	0.681	0.1%
Table 6.18: Results of Regressions for Equations 6.1 and 6.2 (TU)					
** significant at 1% level or less and ^{ns} is not significant					

Again, for the six multiple regressions run above, the collinearity statistics (Variance Inflation Factors - VIF) for each independent variable were close to 1 (0.96 to 1.06) indicating a relatively low level of multi-collinearity. Based on the coefficients calculated above, the direct and indirect effects in the individual paths (labelled (a) to (f)) can now be decomposed as follows in Table 6.19.

Path	Observed Correlation (Table 6.9)	=	Direct Effects (Table 6.18)	+	Indirect Effects	+	Spurious Effects
(a) TU-SOP-DBIN							
X ₁ to X ₂	-0.202	=	-0.202				
X ₂ to X ₃	-0.106	=	-0.074				+ -0.033 (.166x -.202)
X ₁ to X ₃	0.174	=	0.160	+	<u>0.014</u> (-.074x -.202)		
(b) TU-BP-DBIN							
X ₁ to X ₂	-0.235	=	-0.235				
X ₂ to X ₃	-0.282	=	-0.255				+ -0.27 (.114x-.235)
X ₁ to X ₃	0.174	=	0.114	+	<u>0.060</u> (-.235x-.255)		
(c) TU-RAPM-DBIN							
X ₁ to X ₂	0.036	=	0.036				
X ₂ to X ₃	0.343	=	0.337				+ 0.006 (.162x.036)
X ₁ to X ₃	0.174	=	0.162	+	<u>0.012</u> (.036x.337)		+
(d) TU-SOP-DBGA							
X ₁ to X ₂	-0.202	=	-0.202				
X ₂ to X ₃	-0.331	=	-0.307				+ -0.024 (.118x-.202)
X ₁ to X ₃	0.180	=	0.118	+	<u>0.062</u> (-.202x-.307)		
(e) TU-BP-DBGA							
X ₁ to X ₂	-0.235	=	-0.235				
X ₂ to X ₃	-0.271	=	-0.242				+ -0.029 (.123x-.235)
X ₁ to X ₃	0.180	=	0.123	+	<u>0.057</u> (-.235x-.234)		
(f) TU-RAPM-DBGA							
X ₁ to X ₂	0.036	=	0.036				
X ₂ to X ₃	0.277	=	0.271				+ 0.006 (.170x.036)
X ₁ to X ₃	0.180	=	0.170	+	<u>0.01</u> (0.036x0.271)		+
Table 6.19: Decomposition of Observed Correlations (TU)							

If one applies Baron and Kenny's (1986) set of three conditions, then it would appear that SOP-DBIN and TU-RAPM correlation coefficients were not significantly related and therefore, the resulting paths labelled (a), (c) and (f) above are not significant and not suggestive of an intervening effect. For the remaining three paths, labelled (b), (d) and (e), the first two conditions are met and the indirect effects are underlined in the Table 6.19 above. Upon further inspection of the third condition, full mediation is apparent in all these three cases since the prior significant correlation between the

independent variable (TU) and the dependent variables (DBIN and DBGA) become no longer significant (path coefficients not significant) after controlling for the effects of the intervening variable (SOP and BP). More specifically, the coefficients (P_{31}) in these paths were all non-significant. The individual diagrams (Figures 6.3a, 6.3b and 6.3c) are now shown for the significant paths:

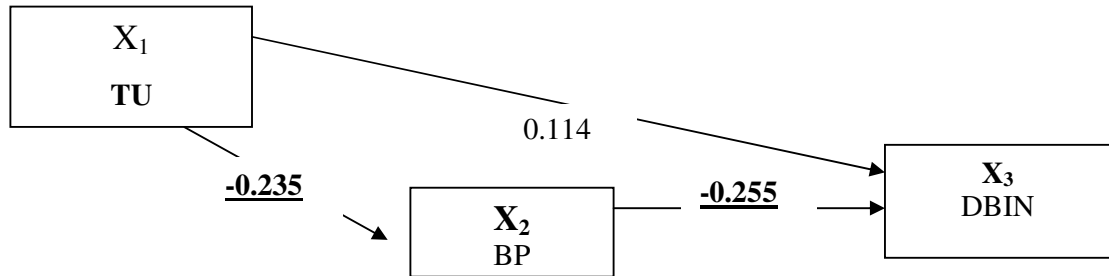


Figure 6.3a – The Significant Intervening Effect of BP on TU and DBIN

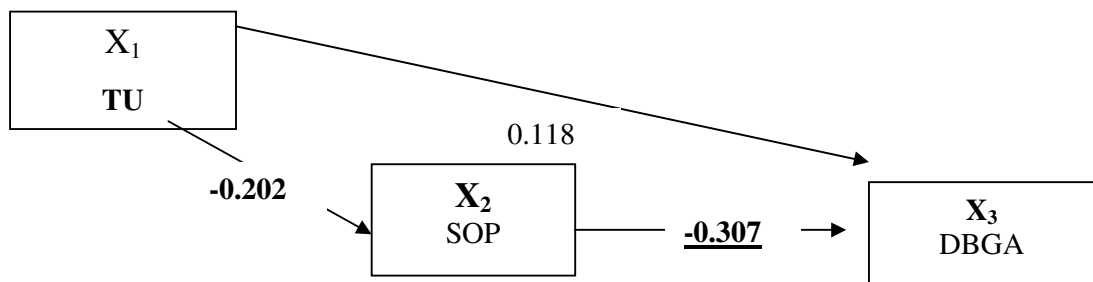


Figure 6.3b – The Significant Intervening Effect of SOP on TU and DBGA

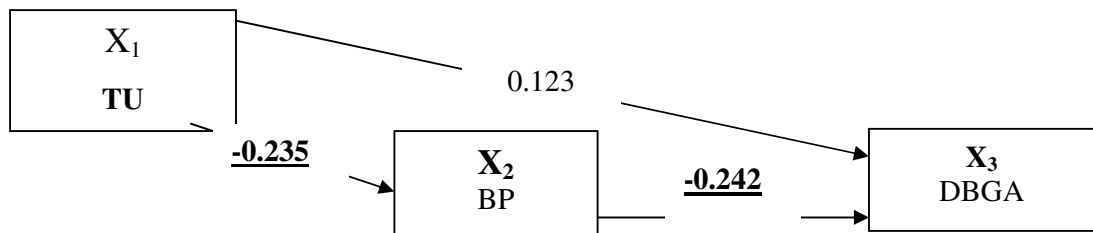


Figure 6.3c – The Significant Intervening Effect of BP on TU and DBGA

(Coefficients bold underlined are significant at 1% whereas those in bold only are significant at 5%)

As mentioned earlier, and whilst Baron and Kenny's (1986) conditions for full mediation have now been met, a formal test of significance must now be used to confirm the indirect effects described above. Sobel's (1982) test is estimated using the formula $Z = a*b/\text{Square-Root}(b^2*s_a^2 + a^2*s_b^2)$ where a and b are the un-standardized path coefficients respectively from Equations 6.1 and 6.2 and S_a and S_b are the

corresponding standard errors. For all the paths described in Figure 6.3, the z-scores are significant (p-value equal to or less than 0.05) confirming that the indirect effects are significantly different from zero. Hence, hypothesis H15b is fully supported (for both forms of dysfunctional behaviour) and hypothesis H15a is partially supported (for DBGA only). However, hypothesis H15c is not supported at all.

Although the mediation effects of MCS sub-systems between TU and dysfunctional behaviour have not been significant for all paths, results show the dampening effect of BP and SOP on dysfunctional behaviours. Indeed, the initial results showed the enhancing and direct effects of task uncertainty on both types of managerial dysfunctional behaviour. However, in the paths shown above, this direct effect is eliminated when BP and SOP are included in the model. This brings more weight to the initial results that BP and SOP ‘keep in check’ managerial dysfunctional behaviours in organizations. In contrast, this does not seem to be the case for RAPM. No significant RAPM path exists between TU and DBIN/DBGA. However, the correlation matrix and overall path model does seem to indicate stronger linkages between INT, RAPM and DBIN and this will be now examined in the context of the Model 1b results.

6.4.4. Investigating Model 1b (Superior’s Interactive Use of Controls)

The sub-hypotheses in H16 argue that each control sub-system has a significant intervening effect on the relationship between superior’s interactive use of controls and dysfunctional behaviours. There are again 6 potential individual paths (e.g. INT-SOP-DBIN) to be tested i.e. 2 DB variable x 3 control sub-systems for the INT context. As in the case of Task Uncertainty, the following regression equations (Equations 3 & 4) will be estimated and where relevant, the same notation was in Equations 6.1 and 6.2.

$$X_{2(i)} = P_{24(i)} X_4 + P_{2w(i)} S_{w(i)} \quad \text{[Equation 6. 3]}$$

$$X_{3(j)} = P_{34(j)} X_4 + P_{32(i)(j)} X_2 + P_{3z(j)} S_{z(j)} \quad \text{[Equation 6.4]}$$

Where:

X_4 = Superior’s Interactive Use of Controls (INT)

$P_{24(i)}$, $P_{34(j)}$ and $P_{32(i)(j)}$ = path coefficients for explanatory variables

$P_{2w(i)}$ and $+ P_{3z(j)}$ = path coefficients for unexplained variances

$S_{w(i)}$ and $+ S_{z(j)}$ = error variables.

Again, the direct effects coefficients from Equation 3 ($P_{21(i)}$) were already estimated in Section 6.3.2 (Contextual variables to MCS). Hence, Table 6.20 below displays the results for Equations 6.4, and provides the summary results corresponding to Equation 6.3. As in the previous cases, for the six multiple regressions run below, the collinearity statistics (Variance Inflation Factors - VIF) for each independent variable were close to 1 (0.92 to 1.09) indicating a low level of collinearity between the independent variables.

Dependent Variable	Independent Variable	Coefficient	t-value	p-value (sig)	R ² F-Value
Equation 6.4 Coefficients and Statistics					
DBIN	SOP (P_{32})	-0.176	-1.985	0.049	7.4%
	INT (P_{34})	0.259	2.923	0.004	(5.040)**
DBIN	BP (P_{32})	-0.342	-4.100	0.000	15.6%
	INT (P_{34})	0.294	3.402	0.001	(11.778)**
DBIN	RAPM (P_{32})	0.307	3.557	0.001	13.1%
	INT (P_{34})	0.122	1.415	0.160	(9.599)**
DBGA	SOP (P_{32})	-0.412	-4.976	0.000	19.3%
	INT (P_{34})	0.301	3.632	0.001	(15.191)**
DBGA	BP (P_{32})	-0.325	-3.855	0.000	13.7%
	INT (P_{34})	0.257	3.052	0.003	(10.058)**
DBGA	RAPM (P_{32})	0.243	2.747	0.007	9.0%
	INT (P_{34})	0.118	1.337	0.184	(6.265)**
Equation 6.3 Coefficients and Statistics					
SOP	INT (P_{24})	0.271	3.190	0.000	7.4% (10.176)**
BP	INT (P_{24})	0.211	2.437	0.016	4.4% (5.940)*
RAPM	INT (P_{24})	0.291	3.437	0.001	8.4% (11.810)**
Table 6.20: Results of Regressions for Equations 3 and 4 (INT)					
*significant at 5% level and ** significant at 1% level or less.					

The direct and indirect effects in the individual paths for the superior's interactive use of controls can now be decomposed in Table 6.21 below. The individual paths are labelled (g) to (l). In all cases, Baron and Kenny's (1986) first two conditions are met.

Path	Observed Correlation (Table 6.9)	=	Direct Effects (Table 6.20)	+	Indirect Effects	+	Spurious Effects
(g) INT-SOP-DBIN							
X ₄ to X ₂	0.271	=	0.271				
X ₂ to X ₃	-0.106	=	-0.176			+	0.070 (.259x .271)
X ₄ to X ₃	0.212	=	0.259	+	-0.047 (.271x -.176)		
(h) INT-BP-DBIN							
X ₄ to X ₂	0.211	=	0.211				
X ₂ to X ₃	-0.282	=	-0.342			+	0.060 (.294x.211)
X ₄ to X ₃	0.212	=	0.294	+	-0.072 (-.342*.211)		
(i) INT-RAPM-DBIN							
X ₁ to X ₂	0.291	=	0.291				
X ₂ to X ₃	0.343	=	0.307			+	0.036 (.122x.291)
X ₄ to X ₃	0.212	=	0.122	+	0.090 (.291x.307)	+	
(j) INT-SOP-DBGA							
X ₄ to X ₂	0.271	=	0.271				
X ₂ to X ₃	-0.331	=	-0.412			+	0.081 (.301x.271)
X ₄ to X ₃	0.189	=	0.301	+	-0.112 (.271x-.412)		
(k) INT-BP-DBGA							
X ₄ to X ₂	0.211	=	0.211				
X ₂ to X ₃	-0.271	=	-0.325			+	0.054 (.257x.211)
X ₄ to X ₃	0.189	=	0.257	+	-0.068 (-.325x.211)		
(l) INT-RAPM-DBGA							
X ₄ to X ₂	0.291	=	0.291				
X ₂ to X ₃	0.277	=	0.243			+	0.034 (.118*.291)
X ₄ to X ₃	0.189	=	0.118	+	0.071 (0.243*0.291)	+	
Table 6.21: Decomposition of Observed Correlations (INT)							

However, for path (g), (h), (j) and (k), there is an indication that the coefficients (P₃₄) for the contextual variable (INT) vis-à-vis the dependent variables (DBIN or DBGA) has increased when the mediator (SOP and BP) variable was added to the model. For a

full or partial mediation to occur, the coefficient should have decreased or become non-significant. This is clear evidence that SOP and BP do not have a significant intervening effect between INT and both forms of dysfunctional behaviour. In other words, a situation of a high level of interactive use of controls by the superior stimulates a higher extent of managerial dysfunctional behaviour and even the inclusion of MCS sub-systems such as SOP and BP cannot control for this effect. Hence, Hypotheses H16a and H16b are not supported.

On the other hand, the INT coefficients associated with paths labelled (i) and (l) (i.e. INT-RAPM-DBIN and INT-RAPM-DBGA) do satisfy Baron and Kenny's (1986) third condition i.e. they do become non-significant after the inclusion of the intervening variable (RAPM). This indicates full mediation and again the Sobel (1982) test can now be applied to formally assess the significance of the indirect effect of RAPM. Based on the un-standardized coefficients from Equations 6.3 and 6.4 (RAPM being the intervening variable), the z-scores for both paths are found to be significant (p-value less than 5%). Therefore, Hypothesis H16c is fully supported i.e. for both forms of dysfunctional behaviour and the relevant significant paths are show in Figure 6.4a and Figure 6.4b:

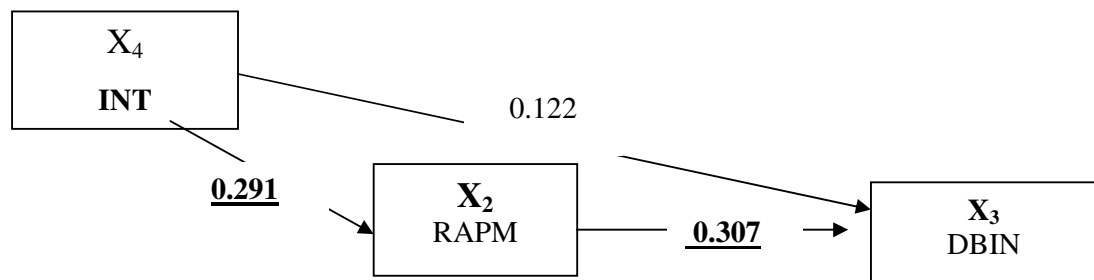


Figure 6.4a – The Significant Intervening Effect of RAPM on INT and DBIN

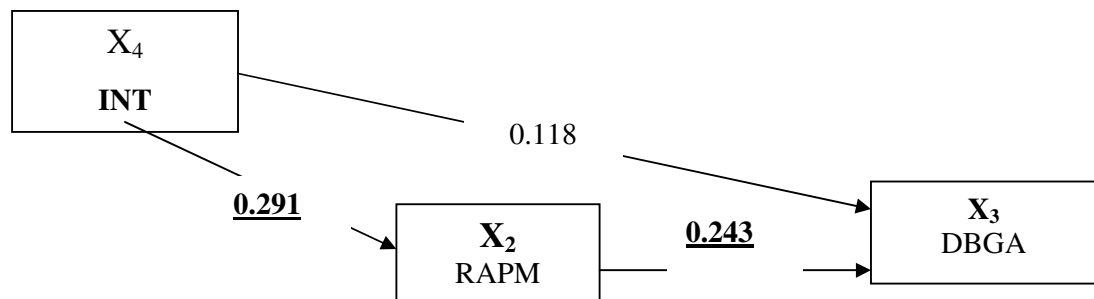


Figure 6.4b – The Significant Intervening Effect of RAPM on INT and DBGA

(Coefficients bold underlined are significant at 1%)

In contrast to the previous contextual variable (TU), INT is shown to have stronger direct relationships to dysfunctional behaviours even in the presence of the hypothesised intervening variables of SOP and BP. In the paths involving SOP and BP, the INT coefficients are strongly significant and positive, thereby enhancing the extent of managerial dysfunctional behaviour. Secondly, RAPM is the only MCS system that is acting as a significant intervening variable between INT and DBIN/DBGA. This finding seems to reinforce the evidence on the diametrically opposite impact of RAPM as a control sub-system on manager's extent of dysfunctional behaviour. The implications and analysis will be considered in Section 6.7.3.

6.5. Model 2 Results: The Moderating Model

6.5.1. Assessing the Interaction

The moderating model focuses on the role of institutional theory-led pressures in influencing the link between MCS and dysfunctional behaviour. According to Luft and Shields (2003, p. 9), the moderator-variable interaction (MVI) model implies that a moderator variable (i.e. the legitimating nature of controls) has no influence on the dependent variable (i.e. dysfunctional behaviour) in the absence of the independent variable (i.e. MCS) as well as no influence on the latter. The 'influence' operates solely by changing the effect of the independent variable on the dependent variable.

As shown extensively in Chapter 2, the use of the MVI model was, and remains to a certain extent, the primary causal-model form i.e. a representation of how MCS operate in organizations, in relation to other variables of interest such as managerial performance, task uncertainty etc. Chenhall (2003, p. 155) refers to the MVI model as an interaction variable model and contends that they have been the dominant form of modelling in contingency-based research.

Consistent with the explanations in Chapter 2 (Section 2.8.3), this study will make use of the moderated regression analysis (MRA) technique to assess the 'form' of interaction. However, as documented in Gerdin and Greve (2004), a first step can be carried out to assess the 'strength' of the interaction since there is no reason to expect that a form interaction is necessarily the same as a strength interaction (2004, p. 311-312). Indeed, Gerdin and Greve (2004, p. 311) warn the two forms of fit may, in some cases, yield consistent results but there is a no priori reason to think they will generate

similar results. Hence, there may be four possibilities occurring in a particular interaction study namely, no interaction, or a form but no strength interaction, or a strength but no form interaction or finally both a strength and form interaction. This is one of the main issues raised by Hartmann and Moers (1999, 2003) in the use and interpretation of MRA in MCS research. According to the authors (1999, p. 297-298), there are a number of budgetary studies that have wrongly expressed their hypothesis and their concurrent conclusions i.e. stating a form hypothesis but testing and concluding on a strength hypothesis. It is however noted that the hypotheses made in this study were originally expressed in a form interaction.

6.5.2. The Strength of the Moderation

As in the cases of Brownell (1983b) and Merchant (1984) and recommended in Gerdin and Greve (2004), a sub-group correlation analysis can be used to evaluate the existence of a strength interaction. The correlation between the various MCS sub-systems and forms of dysfunctional behaviour will be compared for two sub-groups i.e. those with higher than average agreement on the legitimating nature of controls legitimacy and those with lower than average agreement to the legitimating nature of controls¹²².

1. Outcome Variable	Dysfunctional Behaviour (Information Manipulation - DBIN)	
MCS Sub-system:	Low LNC	High LNC
SOP	-0.015 (0.899)	-0.188 (0.161)
BP	-0.315 (0.007)	-0.238 (0.075)
RAPM	0.326 (0.005)	0.362 (0.006)
2. Outcome Variable	Dysfunctional Behaviour (Gaming – DBGA)	
MCS Sub-system:	Low LNC	High LNC
SOP	-0.297 (0.011)	-0.342 (0.009)
BP	-0.366 (0.001)	-0.145 (0.282)
RAPM	0.441 (0.000)	0.144 (0.286)
Number of cases	73	57
<i>Table 6.22: Sub-Group Correlation Matrix</i> (Significance in parentheses and italics)		

¹²² The groups were split at the mean level. Alternatively, as in Merchant (1984), the median can be used to separate the high and low groups. This was also done but the differences in the correlation matrices were not materially different.

Table 6.22 indicates some visible changes in the strength of the relationships in a condition of high agreement to the LNC compared to low agreement to the LNC. For instance, in the case of DBIN, the negative relationship between BP and DBIN is reduced in a high LNC situation. Conversely, the positive relationship between RAPM and DBIN is enhanced in a high LNC situation. This gives some credence to the arguments developed in the hypothesis development chapter (Sections 4.5.2 and 4.5.3), namely that managers perceiving a high level of LNC within the organization will engage in more dysfunctional behaviour in response to the greater use of controls.

This line of argument does not extend to the second form of dysfunctional behaviour (DBGA). In a high LNC situation, managers appear to reduce their extent of gaming in response to the SOP controls. In the case of BP and RAPM, the correlations between these two respective control sub-systems become non-significant in a high LNC situation. In a high LNC situation, managers perceive that controls are merely rituals and historically reproduced practices that have little impact on their day-to-day activities and simply assert the authority of the higher levels of management. In this respect, the incentive to engage in dysfunctional behaviours may be increasing but solely in respect to information manipulation. Indeed, the extent of gaming behaviours in reaction to the SOP control is further reduced in a high LNC situation whilst the correlations between SOP, BP and DBGA become non-significant when LNC is high.

However, upon statistical inspection (Fisher's r to z transformation e.g. refer to Preacher, 2002), only one of the above-mentioned differences in correlations is found to be significantly different at the 5% level, namely for the RAPM-DBGA relationship. In conclusion, the use of sub-group correlation analysis for LNC provides some indication of the influence of managerial opinions on the legitimating nature of controls in moderating the relationship between MCS and DBIN/DBGA in a very selective way. Based on the analysis, LNC is found to have a strength interaction only in one case. The next step is now to examine the form of the interaction using the MRA technique.

6.5.3. Form of the Moderation (MRA).

The MRA technique is consistently documented in both the MCS and statistical literature (e.g. Hartman and Moers, 1999, 2003; Gerdin and Greve, 2004; Jaccard and Turrissi, 2003; Cohen and Cohen, 1983). According to Jaccard and Turrissi (2003, p. 18),

the most popular approach involves estimating parameters for two equations: one that includes the two independent variables (e.g. the MCS variable and the moderator variable – LNC) and one that includes the latter two variables plus a third variable known as the product term. Equation 6.5 and 6.6 are provided and reflect the application of the MRA technique (notations changed compared to Model 1).

$$Y_{(j)} = \beta_{1(i)} X_1 + \beta_2 X_2 + e_{1(ij)} \quad \text{[Equation 6.5]}$$

$$Y_{(j)} = \beta_{3(i)} X_1 + \beta_4 X_2 + \beta_{5(ij)} X_1 X_2 + e_{2(ij)} \quad \text{[Equation 6.6]}$$

Where:

$X_{1(i)}$ = MCS sub-systems ($i = 1 \dots 3$) = SOP, BP and RAPM

X_2 = Legitimizing Nature of Controls (LNC)

$Y_{(j)}$ = Dysfunctional Behaviours ($j = 1, 2$) = DBIN and DBGA

$\beta_{1(i)}$, $\beta_{2(i)}$, $\beta_{3(i)}$ and $\beta_{4(i)}$ = Coefficients for main explanatory variables

$\beta_{5(ij)}$ = Coefficient for interaction term

$e_{1(ij)}$ and $e_{2(ij)}$ = error variables.

Technically, there are two indicators that can be used to confirm that there is a form interaction, namely (i) a statistically significant increase in the explanatory power of Equation 6.6 in relation to Equation 6.5 (difference in R^2 – hierarchical F test) and (ii) a statistically significant coefficient for the interaction term (β_5). However, as demonstrated in Cohen and Cohen (1983) and confirmed in Jaccard and Turrisi (2003, p. 26), the F-statistic for the increase in R^2 equals the square of the t-statistic for the interaction term (also in Hartmann and Moers, 1999, p. 294). Hence, in practical terms, a statistically significant coefficient for β_5 would be sufficient to support a form interaction hypothesis.

A total of 5 pairs (Equation 6.5 and 6.6) of regressions can now be run to test Hypotheses H17 to H22 (except for H18). However, a data issue had to be resolved, namely the existence of multi-collinearity in these models. For example, as correctly identified and dealt with in Abernethy and Brownell (1999) and explained in Jaccard and Turrisi (2003, p. 27), the product term is often highly correlated with one or both of the constituent independent variables. This was detected in this study. For example, in the SOP to DBGA model, the VIF statistics in Equation 6.5 were quite acceptable (1.02) but in Equation 6.6, the inclusion of the product term (SOP x DBGA – which has a significant coefficient), the VIF statistics for the independent variables increased to a

range of 2.26 to 6.03. Nevertheless, Jaccard and Turrisi (2003, p. 28) as well as Hartmann and Moers (1999) downplay the implications of high multi-collinearity in interaction models and argue that a more pressing issue would occur if the moderator and the independent variable were correlated¹²³. Yet, as part of their explanations and illustrations of MRA techniques, they (2003, p. 29) do adopt strategies to “...*avoid problems with multi-collinearity*”.

In consideration of the above limitation, one of the often applied strategies to reduce the VIF statistics is mean centering. As explained in Abernethy and Brownell (1999, p. 197), centering involves the subtraction of the mean value of the independent variables¹²⁴ (e.g. SOP and LNC) from the original score. The product term would then be the multiplication of the centered independent variables. Apart from reducing the multi-collinearity, Jaccard and Turrisi (2003, p. 30) contend that this procedure would make the coefficients for the independent variables (i.e. β_3 and β_4) easier to interpret. The ability to interpret the latter coefficients – known as ‘lower order effects’ in Hartmann and Moers (1999, 2003) – has been the subject of controversy in MCS research due to apparently conflicting arguments and recommendations that lower order effects in a multiple regression that includes a multiplicative term cannot be interpreted (from Southwood, 1978, and cited for example in Gul and Chia, 1994; Lau et al., 1995). But more recently, Hartmann and Moers (2003, p. 806) have concluded that these lower order effects can be interpreted for “...ratio-scaled variables and interval-scaled variables that are centered”. In light of the above, all the regressions results below are based on mean centered independent variables (SOP, BP, RAPM and LNC). Consequently, the product terms are also based on the mean centered independent variables.

6.5.3.1. Form of the Moderation – Results for DBGA only

Table 6.23 displays the regression results (standardized coefficients and unstandardized coefficients) in relation to DBGA only.

¹²³ This is not the case in this study as shown in the Correlation Matrix (Table 6.9).

¹²⁴ Centering does not apply to the dependent variable.

	Equation 6.5 Y = DBGA	Equation 6.6 Y = DBGA
X₁₍₁₎ – SOP	$\beta_1 = -0.318^{**}$ (-0.346; 0.091)	$\beta_3 = -0.314^{**}$ (-0.341; 0.090)
X₂ – LNC	$\beta_2 = 0.085^{ns}$ (0.078; 0.078)	$\beta_4 = 0.047^{ns}$ (0.044; 0.079)
X₁ x X₂	-	$\beta_5 = 0.171^*$ (0.162; 0.080)
R²	11.6%	14.4%
F-Test	8.351 ^{**}	7.068 ^{**}
X₁₍₂₎ – BP		
	$\beta_1 = -0.254^{**}$ (-0.309; 0.106)	$B_3 = -0.305^{**}$ (-0.371; 0.106)
X₂ – LNC	$\beta_2 = 0.071^{ns}$ (0.066; 0.081)	$\beta_4 = 0.032^{ns}$ (0.029; 0.080)
X₁ x X₂	-	$\beta_5 = 0.235^{**}$ (0.250; 0.091)
R²	7.8%	13%
F-Test	5.386 ^{**}	6.276 ^{**}
X₁₍₃₎ – RAPM		
	$\beta_1 = 0.285^{**}$ (1.107; 0.328)	$\beta_3 = 0.252^{**}$ (0.977; 0.333)
X₂ – LNC	$\beta_2 = 0.145^{ns}$ (0.134; 0.078)	$\beta_4 = 0.157^{ns}$ (0.145; 0.078)
X₁ x X₂	-	$\beta_5 = 0.152^{ns}$ (0.417; 0.237)
R²	9.8%	12%
F-Test	6.892 ^{**}	5.704 ^{**}
Table 6.23: MRA Results (DBGA as dependent variable)		
un-standardized coefficients; standard errors shown in parentheses and italics		
** significant at 1% level or less, * significant at 5% level or less, and ^{ns} is not significant		

In all three cases, the VIF statistics for the independent variables have remained at very acceptable levels, ranging from 1.01 to 1.09 - thus indicating that the issue of multicollinearity has been appropriately addressed in the context of mean centered ratio-scaled and interval-scaled variables. As already found in the direct effects section of this chapter (Section 6.3.1), all three MCS sub-systems are significantly affecting (at the 1% significance level or less, from Equation 6.5) the extent of managerial gaming – negatively in the cases of SOP and BP and positively in the case of RAPM. On the other hand, there are no significant coefficients for the LNC variable in all the regressions equations above. Hence, the managers’ perceptions on the legitimating influences in the organizations are not having a direct effect on DB but the interaction of LNC and the respective controls are having some influence on the managers’ extent of gaming.

In particular, the β_5 coefficients for the SOP and BP equations are significant at the 5% and 1% level respectively. For the SOP equation, the interaction term standardized coefficient is significantly positive (0.171, $t=2.023$, $p = 0.045$) and the interaction term in the BP equation is also positive (0.235, $t=2.739$, $p = 0.007$). Whilst this is sufficient statistical evidence to point towards a form interaction for SOP and BP vis-à-vis DBGA, the nature of the form interaction needs to be further analysed to confirm whether the relevant hypothesis is supported. However, insofar as the moderating effect of LNC in the relationship between RAPM to DBGA is concerned (H22), the non-significant interaction term is conclusive enough to state that H22 is not supported¹²⁵.

For the other two hypotheses involving DBGA (i.e. H17 and H20), the moderating effects can now be considered in more detail. As advised in Jaccard and Turrisi (2003) and Preacher (2003), one can make use of the un-standardized coefficients and model a graphical representation of the moderation (e.g. refer to Govindarajan and Gupta, 1985). For the first significant moderating model, this is done by calculating the slope of the SOP-DBGA's linear relationship at three different levels of LNC (high, average and low). This is usually determined as one standard deviation above and below the mean for the high and low equations. Since all the independent variables are centered, the means are obviously equal to zero.

Hence, the regression equation for Equation 6.6 (SOP) generated the following un-standardized form:

$$Y_2 = 2.977 - 0.371 X_{1(2)} + 0.044 X_2 + 0.162 X_{1(2)} X_2$$

The above can be simplified by grouping X_1 and X_2 separately, i.e.

$$Y_2 = (-0.341 + 0.162 X_2) X_{1(1)} + (2.977 + 0.044 X_2)$$

The different equations of $X_{1(1)}$ affecting Y_2 (i.e. SOP on DBGA) can now be derived under three different levels of LNC. The standard deviation for the centered LNC is 1.075 and therefore, X_2 will take different values, namely low LNC (-1.075), medium

¹²⁵ Although not hypothesised, a strength interaction was however found to be significant in the previous section.

LNC (0) and high LNC (1.075). Replacing X_2 for these values, the respective equations are now as follows:

- Low LNC $Y_2 = -0.515 X_{1(l)} + 2.923$
- Medium LNC $Y_2 = -0.341 X_{1(l)} + 2.977$
- High LNC $Y_2 = -0.167 X_{1(l)} + 3.024$

From the above output, it is already noted that the negative slope seems to reduce as the level of LNC increases whilst there is little change in the constant terms. The above equations can be sketched on the same graph for the same values of $X_{1(l)}$ (SOP). For the sake of simplicity, the selected values of SOP (centered) will be the maximum (1.17) and minimum values (-1.83) to present the relationship diagrammatically.

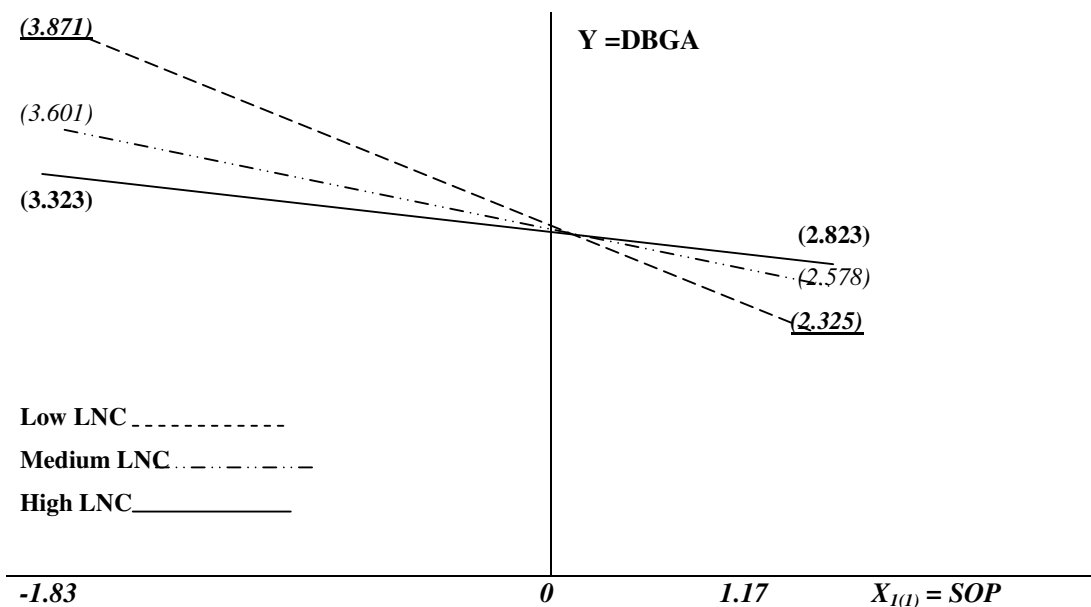


Figure 6.5: Moderating Effect of LNC on SOP and DBGA

(DBGA scores in parentheses)

Figure 6.5 illustrates clearly the influence of LNC. It can therefore be concluded that there is a stronger negative relationship between SOP and DBGA when LNC is low and a weaker negative relationship when LNC is high. To complete the analysis of the interaction, one must formally consider whether the interaction is monotonic or non-monotonic i.e. whether the direction (sign) of the relationship between SOP and DBGA is the same at all values of the contingent variable (monotonic) or not (non-monotonic).

Most researchers recommend and use the partial derivative method (e.g. Schoonhoven, 1981; Hartmann and Moers, 1999; Govindarajan and Gupta, 1985; Nouri, 1994; Tsui, 2001) whereby Equation 6 is partially derived with respect to the control variable (X_1) and the results are graphically inspected over the range of the contingent variable (LNC). However, Schoonhoven (1981, p. 376-377) suggests a simpler test where the un-standardized coefficients of Equation 6.6 are used to estimate the potential ‘inflection point’ i.e. the LNC point at which effect of X_1 (SOP) on Y (DBGA) will change direction. The following formula is hereby used:

$$X_2 = - \beta_3 / \beta_5 \quad \text{[Equation 6.7]}$$

Where β_3 and β_5 are the un-standardized coefficients from Equation 6.6.

If the obtained value from Equation 6.7 lies within the observed range of LNC, then there is an actual inflection point and the interaction is viewed as non-monotonic. For SOP-DBGA, the value of Equation 6.7 is 2.105 $[-(-0.341)/0.162]$. Given that the variables were centered, the actual LNC score is 2.105 added to its original mean (2.8918) and this is 4.9968. As stated in Section 6.2.7 (Table 6.8), the observed values of LNC range between 1 and 6 and the output from Equation 6.7 effectively lies within the observed range. This confirms that the interaction is non-monotonic.

Hence, whilst SOP does decrease the extent of managerial dysfunctional behaviour (gaming) at most of the observed levels of LNC, the dampening effect of SOP on gaming is gradually mitigated when levels of agreement to the legitimating nature of controls increases. At higher levels of LNC (i.e. beyond the inflection point), the level of agreement by managers on the existence of these institutional pressures in their organizations will now interact with SOP to increase the extent of gaming behaviours. Strictly speaking, the relevant hypothesis (H17) assumed a monotonic interaction and an enhancing impact on a positive relationship between SOP and DBGA. However, the actual results indicate a more complex significant relationship and these are not in line with the hypothesis.

The next identified significant interaction is between BP and DBGA and this is now explored in detail using the same approach as in the case of SOP. The regression equation for Equation 6.6 (BP) provided the following un-standardized output:

$$Y_2 = 3.010 - 0.371 X_{1(2)} + 0.029 X_2 + 0.250 X_{1(2)} X_2$$

The above can be simplified by grouping X_1 and X_2 separately, i.e.

$$Y_2 = (-0.371 + 0.250 X_2) X_{1(2)} + (3.010 + 0.029 X_2)$$

The different equations of $X_{1(2)}$ affecting Y_2 (i.e. SOP on DBGA) can now be derived under three different levels of LNC. The standard deviation for the centered LNC is 1.075 and therefore, X_2 will take different values, namely low LNC (-1.075), medium LNC (0) and high LNC (1.075). Replacing X_2 for these values, the respective equations are now as follows:

- Low LNC $Y_2 = -0.640 X_{1(2)} + 2.979$
- Medium LNC $Y_2 = -0.371 X_{1(2)} + 3.010$
- High LNC $Y_2 = -0.102 X_{1(2)} + 3.041$

As in the case of SOP, the negative slopes in the above equations reduce as the level of LNC increases. The above equations can be plotted on the graph for the same values of $X_{1(2)}$ (BP). The selected values of BP (centered) will be the maximum (0.78) and minimum values (-2.72) to present the relationship diagrammatically.

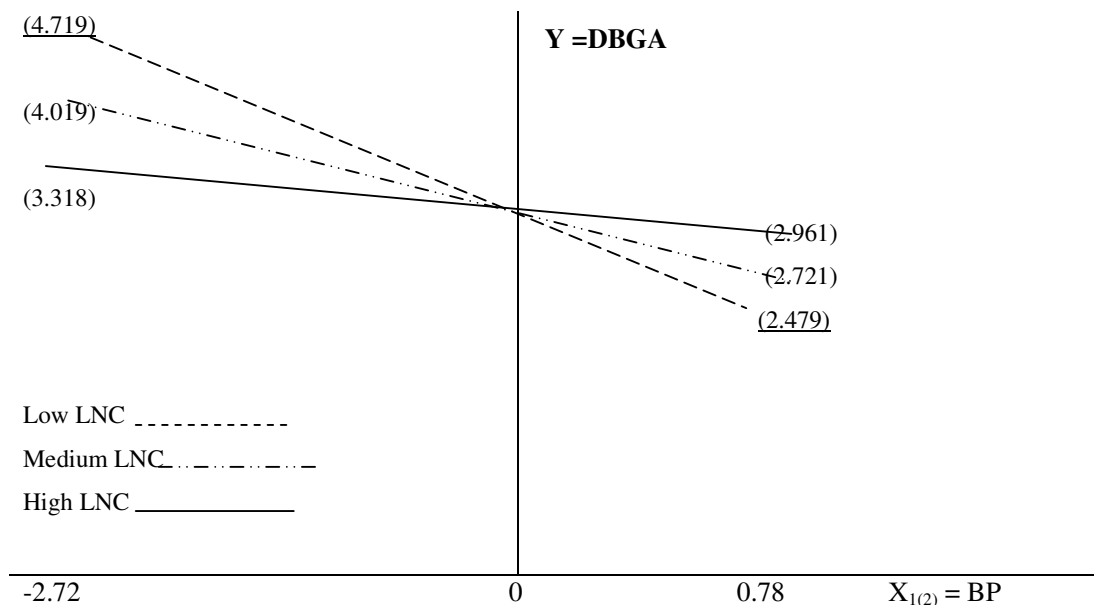


Figure 6.6: Moderating Effect of LNC on BP and DBGA

(DBGA scores in parentheses)

As show in Figure 6.6, and similarly to the case of SOP, LNC moderates the negative relationship between BP and DBGA. Again, a higher level of LNC amongst the respondents appears to reduce the DB-decreasing effects of BP. The monotonic/non-monotonic procedure is repeated and the score for Equation 6.7 is 1.484 $(-(-0.371)/0.250)$. This increases to 4.3758 when added to the mean of the original non-centered LNC variable, which is within the observed values of LNC. This is conclusively a non-monotonic interaction. Therefore, exactly as in the case of SOP, the results can be interpreted as follows. Whilst BP appears to cause a reduction in gaming, this relationship is significantly moderated by the perceptions on the institutional pressures of controls in the organization. As LNC increases, BP has a lesser negative impact on DBGA and eventually at the inflection point (i.e. LNC = 4.3758), the impact becomes null (zero at the inflection point) and becomes positive thereafter. Again, Hypothesis H20 assumed a positive relationship between BP and DBGA and a monotonic interaction (i.e. no change in direction of relationship as LNC changes). Therefore, the results do not formally meet H20 but are indicative of a significant non-monotonic interaction. The significance of these results will be further analysed in Section 6.7.4 but the next step is to repeat the MRA process for the second form of dysfunctional behaviour – information manipulation (DBIN)

6.5.3.2. Form of the Moderation – Results for DBIN only

Table 6.24 below displays the regression results (standardized coefficients and unstandardized coefficients) in relation to DBIN only. The VIF statistics for the centered independent variables have again remained at very acceptable levels, ranging from 1.01 to 1.1. The non-hypothesised model of LNC on SOP to DBIN is not shown and in any case, the relevant coefficients were all non-significant.

As seen in the direct effects section of this chapter (Section 6.3.1), BP and RAPM are significantly affecting (at the 1% significance level or less, from Equation 6.5) the extent of managerial information manipulation – negatively in the case of BP and positively in the case of RAPM. As in the case of DBGA, there are no significant coefficients for the LNC variable in all the regressions equations above. This is once more suggestive that the managers’ perceptions on the institutional influences in the organizations do not directly impact on DB.

	Equation 6.5 Y = DBIN	Equation 6.6 Y = DBIN
X₁₍₂₎ – BP	$\beta_1 = -0.278^{**} (-0.374; 0.118)$	$\beta_3 = -0.294^{**}(-0.394; 0.121)$
X₂ – LNC	$\beta_2 = 0.017^{ns} (0.017; 0.089)$	$\beta_4 = 0.005^{ns} (0.005; 0.091)$
X₁ x X₂	-	$B_5 = 0.071^{ns} (0.083; 0.103)$
R²	8%	8.5%
F-Test	5.512 ^{**}	3.880 [*]
X₁₍₃₎ – RAPM	$\beta_1 = 0.348^{**} (1.496; 0.357)$	$\beta_3 = 0.305^{**} (1.310; 0.090)$
X₂ – LNC	$\beta_2 = 0.099^{ns} (0.102; 0.085)$	$\beta_4 = 0.121^{ns} (0.124; 0.084)$
X₁ x X₂	-	$B_5 = 0.196^* (0.595; 0.256)$
R²	12.7%	16.3%
F-Test	9.279 ^{**}	8.203 ^{**}
Table 6.24: MRA Results (DBIN as dependent variable)		
un-standardized coefficients; standard errors shown in parentheses and italics		
** significant at 1% level or less, * significant at 5% level or less, and ^{ns} is not significant		

There is also no indication of a significant moderating effect for LNC in the case of BP. The R² changes are very minimal and the β_5 coefficient is non-significant. Therefore, the significant non-monotonic interaction of LNC found in the model of BP to DBGA does not extend to the information manipulation form of dysfunctional behaviour and Hypothesis H19 is not supported.

On the other hand, a significant β_5 positive coefficient is observed for the interaction term RAPM x LNC (standardized $\beta_5 = 0.196$, $t = 2.326$, $p = 0.022$), coupled with an increase in the explanatory power of the model (Equation 6.6), which confirms the existence of a form interaction. This interaction can be now examined mathematically and graphically using the same procedure as in the previous section. The un-standardized coefficients for regression equation 6.6 (for RAPM) are thus expressed as follows:

$$Y_I = 3.861 + 1.310 X_{I(3)} + 0.124 X_2 + 0.595 X_{I(3)} X_2$$

This is re-expressed as follows:

$$Y_I = (1.310 + 0.595X_2) X_{I(3)} + (3.861 + 0.124 X_2)$$

The different equations of $X_{1(3)}$ affecting Y_1 (i.e. RAPM on DBIN) are now estimated, based on three different levels of LNC. Based on the previously used values of LNC, the respective equations are now as follows:

- Low LNC $Y_1 = 0.670 X_{1(3)} + 3.728$
- Medium LNC $Y_1 = 1.310 X_{1(3)} + 3.861$
- High LNC $Y_1 = 1.949 X_{1(3)} + 3.994$

The equations above indicate that the positive slopes increase as the level of LNC increases. The above equations can be plotted on the graph for the same values of $X_{1(3)}$ (RAPM). The selected values of RAPM (centered) will be the maximum (0.89) and minimum values (-0.76) to present the relationship diagrammatically.

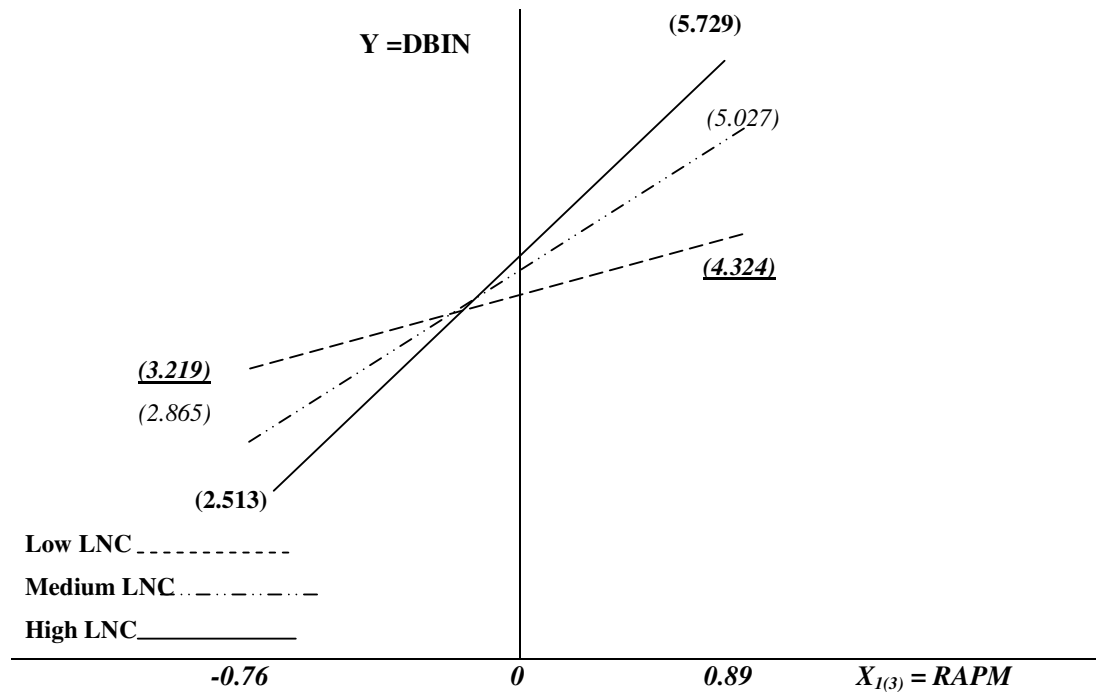


Figure 6.7: Moderating Effect of LNC on RAPM and DBIN
(DBIN scores in parentheses)

As shown in Figure 6.7, there is a stronger positive relationship between RAPM and DBIN as the level of perceived legitimating nature of controls in the organization increases. It was initially found that a higher level of RAPM, in isolation, is very significantly causing a higher extent of information manipulation. In addition, the above indicates an even more positive relationship in situations of high internal legitimacy.

The monotonic/non-monotonic test is repeated and the score for Equation 6.7 comes to -2.2017 $(-(1.310)/0.595)$, from Table 6.23). After accounting for the mean centering effect, the score is 0.69 $(2.8918 - 2.2017)$, which is outside the observed values of LNC. Pursuant to Schoonhoven (1981), this is confirming that the interaction is a monotonic one i.e. there are no changes in the direction of the relationship between RAPM and DBIN, which will remain positive at all observed values of LNC. Given that all the initial interaction hypotheses in Chapter 4 were expressed in a monotonic form, then it can be concluded that the Hypothesis H21 cannot be rejected.

In conclusion to these last two sections, a total of five form moderation models were considered. Two were non-significant. A further two had significant coefficients for the interaction but displayed a non-monotonic form. Finally, only one of the models confirmed the initial hypothesis. The implications of the significant results will be reviewed in Section 6.7.4, in light of the initial expectations and past results from the literature. Prior to that, a final set of hypothesis are considered. These are related to differences in the direct, intervening and moderating models when factors such as functional area are considered.

6.6. Summary of Results and Discussion of Findings

The full set of hypotheses has been empirically tested and the implications/contribution of the relevant findings can now be considered. These implications will be presented under four main headings, namely the (a) the findings on individual variables, (b) the direct relationships between MCS, dysfunctional behaviours and the contextual variables, (c) the Intervening Models and (d) the Moderating Models.

6.6.1. Findings on Individual Variables

In a bid to address the research questions in this study, an essential pre-requisite was the design and/or improvement of three concepts/constructs relevant to management control, namely dysfunctional behaviour (information manipulation and gaming), the superior's use of controls (interactive vs. diagnostic) and internal legitimacy. Finally, in the light of the results from this study, some measurement issues also need to be noted for the other more 'mainstream' MCS variables, namely BP, RAPM and TU.

Very early on in the budgeting literature, the organizational and behavioural effects caused by the use of controls in organization had been observed and documented (e.g. Argyris, 1952, 1953). However, there was a subsequent shift in the interests of researchers towards the more 'positively biased' consequences of controls (motivation, performance, satisfaction), particularly after the development of the contingency paradigm and fit in management control (e.g. Otley, 1978). However, as put forward by Ashton (1976), a 'parallel' loop may be at work in organizations, where unintended and dysfunctional consequences appear to be emerging from the control system's operation. Hirst (1983) used constructs such as stress and tension to approximate dysfunctional behaviour but then authors (e.g. Onsi, 1973; Merchant, 1990; Chow et al., 1996) sought to empirically measure 'control-specific' types of dysfunctional behaviour - principally budgetary slack, short term orientation, and manipulation of performance measures. On the other hand, Jaworski and Young (1992) was the first study to develop and test the broader concept of 'dysfunctional behaviour', based on previous detailed descriptions (Birnberg et al. 1983). However, whilst the authors referred to the gaming and information manipulation forms of DB, they did not seek to measure these separately.

Jaworski and Young's (1992) initial measurement was developed from a five-item instrument to a seven item instrument and adapted to the wider context of management control systems. The validity and reliability statistics were satisfactory and also importantly there was little indication of inconsistent or null responses from the managers in spite of forced-choice design. The descriptive statistics showed a significantly higher extent of information manipulation as compared to gaming practices and a relatively low level of correlation between these two constructs ($r=0.359$)¹²⁶. Thus, the respondents appear to discern between these two constructs and in fact, seem to be more critical of the gaming practices. The latter are generally perceived to have more negative consequences whilst the manipulation of information may be viewed as less controversial. Nevertheless, the results have clearly shown two main forms of dysfunctional behaviour - previously hypothesised in the literature - that can now be identified in the field using the seven item instrument.

¹²⁶ Surprisingly, there is no reported descriptive data on DB in Jaworski and Young (1992) and hence, no comparison could be made.

The identification and measurement of the superior's interactive vs. diagnostic style in the use of controls were based on Simons' (1990, 1991) definitions and empirically researched in Abernethy and Brownell (1999) and Van der Stede (2001). However, one critical difference existed in this study. Rather than surveying the superiors themselves, the middle managers were asked about their perceptions on how their superiors used controls in their organizations. In contrast to Abernethy and Brownell (1999), the four items factored into two constructs, suggesting that interactive and diagnostic styles may not actually be the two extremes of a single spectrum (style of use of controls) i.e. *less* interactive does not necessarily mean *more* diagnostic. However, the reliability of the diagnostic scores was very low and this study therefore focused on the level of interactive style in the use of controls (high/low). It is also noted that the mean scores for interactive use of controls was high in this study (mean = 3.93/6) and similar to Abernethy and Brownell's scores (21.87/28, 1999, p. 196). In spite of some significant results obtained in the intervening models, the interactive vs. diagnostic style in the use of controls remains an issue. In his case studies, Simons (1994) appears to have found and documented a clearly dichotomised concept but the attempts at studying this more empirically have not been entirely successful. In light of recent similar findings, further analysis will be considered in Chapter 7.

The construct 'legitimizing nature of controls' (LNC) as perceived by functional managers was an attempt to examine the influences of the institutional pressures in organizations within the specific realm of management control systems. It is undeniable that institutional theory (and other interpretive perspectives) has in the last 20 years or so reached prominence in the MACS literature and has been supported by a rich set of qualitative research. It was argued that common characteristics of the theory could be operationalized and measured empirically. For instance, organizational control systems could be viewed as legitimising practices that have little use for managers or the organisation and are just reproduced for symbolic purposes and the assertion of authority. The extent to which functional or middle managers would agree with this view was hypothesised to be a variable of interest in examining MCS and dysfunctional behaviour. Of the three items designed from the literature, only two items factored successfully whilst the third one may have affected by a loaded question. Again, as in the case of the interactive style in the use of controls, the measured construct was found to be relatively significant in the moderating models but this measure now needs to be further explored and replicated in other studies to ascertain its reliability and validity.

Whilst the above-mentioned variables and measures are relatively new ones and thus would benefit from refinement and empirical replication, some of the other variables have been extensively used in the MCS literature in various contexts but are still open to interpretation.

The first and main example would be budgetary participation (BP), which had been almost universally measured using Milani's (1975) six item construct. In this study however, two of the items unequivocally did not factor with the others and as mentioned in the relevant section (Section 6.2.2), this may be due to the fact that these two questions involved the expression of opinions rather than the degree of influence a subordinate manager might have in the budget setting process. The results give credence to the earlier discussions in Shields and Shields (1998, p. 66) and Chenhall (2003), who both argued that the BP measurement needs to be reviewed and that participative budgeting should be decomposed further. Consistent with Chenhall's (2003, p. 131) views, one may also argue that changes in the historical context (e.g. management style, increased decentralization and new management accounting practices) in business over the last 30 years may have changed the respondents' perceptions on what is a high vs. a low level of subordinate participation in setting budget targets. As a numerical illustration, Brownell and Hirst's (1986) study found a mean score of 27.04 (over 42) for BP amongst Australian functional managers whilst this study reports a mean score of 4.21 (over 5) for the same variable (using the same six item measure) in the same country (about 16 years after the original study). Arguably, the sample sizes are different but this can also be interpreted by an increase in the level of subordinate participation. Therefore, irrespective of the results obtained for the hypothesised models, there appears to be a robust justification to review the scope and measurement of budgetary participation.

In contrast to BP, the issue of RAPM measurement had been more recently the subject of investigations and reviews e.g. Vagneur and Peiperl (2000), Otley and Fakiolas (2000) and Hartmann (2000). The latter author contended (2000, p. 466-467) that the significant diversity in the operationalization of RAPM not only posed measurement and comparison challenges but also theoretical ones i.e. what exactly is RAPM? These issues were specifically taken up in this study and the RAPM measurement was based on the reliance on accounting measures *relative to* the non-accounting ones, as applied in Harrison (1992, 1993). Again, this choice was motivated by the documented increase

and awareness in companies to the use of non-financial performance measures, principally popularised by techniques such as the Balanced Scorecard or Total Quality Management (TQM). Indeed, whilst this study reported a higher level of reliance on accounting measures for the Australian sample (high RAPM, mean = 1.12), the descriptive statistics had shown a fairly wide deviation (from 0.35 to 2.00) and Harrison's (1993) statistics for an almost equal number of Australian managers showed a RAPM score of exactly 1.00 with less variability (0.50 to 1.71). In conclusion, the use of Harrison's (1992) measure for this study has provided an opportunity for some valid comparisons and more importantly, it is a measure based on the relative rather than the absolute use of accounting measures for performance measurement.

Finally, Task Uncertainty (TU) is another example of a 'popular' variable in MCS research. Chapman (1997), Hartmann (2000) and Chenhall (2003) all consider the broad construct of uncertainty to be an important factor in influencing the design and effectiveness of controls. Some authors had also investigated the sub-components of TU, namely Task Analyzability and Job difficulty (e.g. Mia, 1989) but there has been little consistency in the results involving TU and its other sub-components. As in the case of the BP construct, the measurement of TU has been used in a fairly consistent way (based on Whitley et al., 1983 – combination of task analyzability and task exception dimension) and applied in this study. However, the wording of the last two items (as reported in Section 6.2.5) may have influenced the reliability of the construct and only the first four items factored together with no clear split between analyzability and exception. TU's measurement and sub-dimensions, as documented in previous studies, were not forthcoming in this study and to some extent, this may be due to the decision to adapt the format of the last two items during the pilot testing.

In conclusion to this first section, some variables have been successfully adapted and applied in this study, thereby providing additional evidence of their reliability and validity. On the other hand, results for other variables have not been quite satisfactory, prompting the need to not only re-examine the measurement issues but also the theoretical ones.

6.6.2. Direct Effects (H1 to H14)

The hypotheses H1 to H14 argued for the direct effects between the MCS sub-systems, dysfunctional behaviours and the two contextual variables. Table 6.25 displays the results for each of the hypotheses and the subsequent sub-sections will consider the results in the light of the expectations and any previous literature.

Hypothesis	Relationship	Direction of Relationship (if any)	Actual Results
H1	SOP to DBGA	Negative	Negative
H2	SOP to DBIN	None	None
H3	BP to DBIN	Positive	Negative
H4	BP to DBGA	Positive	Negative
H5	RAPM to DBIN	Positive	Positive
H6	RAPM to DBGA	Positive	Positive
H7	TU to SOP	Negative	Negative
H8	INT to SOP	Negative	Positive*
H9	TU to BP	Positive	Negative
H10	INT to BP	Positive	Positive*
H11	TU to RAPM	Negative	None
H12	INT to RAPM	Negative	Positive*
H13a	TU to DBIN	Positive	Positive
H13b	TU to DBGA	Positive	Positive
H14a	INT to DBIN	Negative	Positive*
H14b	INT to DBGA	Negative	Positive*

Table 6.25: Direct Effects Hypotheses: Summary of Results

* Hypothesis not comparable to actual results due to re-formulation of INT variable

6.6.2.1 Standard Operating Procedures (SOP)

To date, SOP remains a little researched aspect within the MCS literature. The previous SOP studies (Rockness and Shields, 1984; Macintosh and Daft, 1987; Chow et al., 1999) did not empirically consider the consequences of SOPs. The extensive use of SOPs in organizations was certainly a motivation in researching the implications and as hypothesised, a higher use of SOPs would lead to a lower extent of dysfunctional gaming practices. However, one possible caveat from this finding is that one cannot

necessarily view this relationship as a purely linear one between SOPs and gaming. Indeed, it may be argued that there is an 'optimal' level of SOP beyond which gaming will not continue to decrease or even may start to increase as managers actively seek loopholes to beat the system, but this remains to be investigated. Insofar as H2 was concerned, the nature of SOPs (as least, as measured in this study) meant that these would have little impact on information manipulation and although the direction of the relationship was negative, the coefficient was non-significant. The above brings empirical support for the use of SOPs to reduce the extent of managerial dysfunctional behaviour but the impact of SOPs on other outcome variables (such as performance, motivation etc) remains to be examined.

6.6.2.2 Budgetary Participation (BP)

Contrary to expectations (H3), BP was found to be negatively related to information manipulation. Whilst the review of the budgetary slack (Onsi, 1973; Young, 1985; Lukka, 1988; Shields and Shields, 1998) literature pointed towards a negative relationship between BP and slack, the stated hypothesis adopted an agency paradigm whereby managers would be more encouraged to engage in information manipulation behaviours if they were allowed to participate more in the budgeting process.

In consideration of Lukka's (1988) argument that there were two dimensions of slack (slack and upward bias), the comparison might in fact be best made with Lukka's own slack dimension of 'upward bias', which was argued to be a more 'negative' consequence than budgetary slack. Nevertheless, the results seem to give credence that subordinate budgetary participation plays a beneficial role in the relationship with superior managers and enhances the manager's motivations and attitudes (Shields and Shields, 1998, p. 60). On the other hand, this beneficial impact may be revisited when contextual factors are considered.

In the case of H4, the results again confirm a significant negative relationship between BP and the managers' extent of gaming practices. Whilst information manipulation can be associated with slack or upward bias, gaming practices are potentially management actions and decisions in response to a particular control system. This has been less researched and the results could be interpreted in two ways. Firstly, there is a wider set of organizational benefits in the use of participative budgeting in general. This supports

the theoretical underpinnings used to support BP, namely in the economics area (reduction of uncertainty) and the psychology area (value attainment, cognitive effects and motivation). In spite of their different focus, both these theoretical bases acknowledge the improvement in the relations between superior and the subordinate manager, resulting in a 'higher quality decision' or 'information exchange' (Shields and Shields, 1998, p. 59). Hence, the incentive for gaming practice is lowered but the impact of contextual variables may alter this relationship.

6.6.2.3. Reliance on Accounting Performance Measures (RAPM)

It is widely viewed that the debate on the dysfunctional consequences of RAPM (Hopwood, 1972 vs. Otley, 1978) spurred the development of the contingent arguments in MCS research since both researchers could not find consistent results on the impact of RAPM (e.g. refer to Hartmann, 2000, p. 453-455). Subsequently other researchers also reported on both the direct dysfunctional- enhancing and -reducing effects of RAPM (e.g. Merchant, 1985b, 1990; Hughes and Kwon, 1990; Lal et al., 1996, Van der Stede, 2001) but again only one study went beyond the budgetary slack variable i.e. Merchant (1990) by considering data manipulation and management myopia. Others focused solely on proxies of dysfunctional behaviour, such as role ambiguity or job-related tension (e.g. Hirst, 1981).

In this study, the direct and enhancing effects of RAPM on the two forms of dysfunctional behaviours are clearly observed over a cross-sectional sample of manufacturing companies and these are supportive of Hypotheses H5 and H6. These provide a more generalizable finding, compared to Merchant (1990) who surveyed only 54 managers in two firms.

This is a significant empirical finding for the RAPM literature in terms of providing a clear and consistent result on the dysfunctional effects of RAPM. It does not rely on the usual proxies of dysfunctional behaviour and the RAPM measurement was also refined to address the use of accounting measures relative to the use of non-accounting measures. One explanation for the difference in the managers' perceptions between RAPM and the two previously tested control systems is that managers perceive a more direct link from RAPM to their performance appraisal compared to BP and SOP.

6.6.2.4 The Direct Effects of Task Uncertainty (TU) on MCS

Hypotheses H7, H9 and H11 considered the effects of TU on SOP, BP and RAPM respectively. The literature has traditionally attached much importance to the role of uncertainty in the shaping, design and effectiveness of MCS. For example, Chapman (1997) and Hartmann (2000) have both developed arguments based on Galbraith's (1973) notion of uncertainty and different versions of the uncertainty variable have been used in the empirical studies e.g. perceived environmental uncertainty (PEU) and Task Uncertainty (TU).

The hypothesised negative effect of TU on SOP was supported i.e. a high (low) TU will be related to a lower (higher) use of detailed SOPs. By nature, SOP is a set of formal rules on how specific tasks should be addressed. Rockness and Shields (1984) found differences in the use of SOPs by considering only R&D departments whilst Macintosh and Daft (1987) found negative links between the extent of SOPs and the extent of sequential/reciprocal interdependence. In some way, the results in this study provide a broader and more generalisable perspective since it uses the task uncertainty variable, rather than using proxies such as interdependence or functional area. In the latter case, several studies (e.g. Dunk, 1992; Brownell, 1985; Merchant, 1984) used functional area as the variable of interest to proxy for task uncertainty. However, when functional differences (marketing vs. production) were considered in this study, there were no significant differences in the TU-SOP relationship. Hence, this suggests that the use of functional area as a TU proxy may not be advisable.

Insofar as BP was concerned, a positive link was hypothesised between BP and TU. However, hypothesis H9 was not supported and a significant negative relationship was observed. This questions the relevance of the 'information gap' argument as a means to predict the use of budgets in a high uncertainty environment and contradicts the predictions of Chenhall (2003). In fact, this result gives further credence to Merchant's (1984, p. 300) comments that a low task uncertainty environment (as characterised by high process automation) would negate to some extent the need for budgetary participation. In his words, managers "*...meet less frequently with their superiors regarding budget matters, and they feel that they have greater influence over their budget plans*". The comparison to Merchant's results and comments is a limited one since Merchant (1984) did not use Milani's (1975) measure of budgetary participation.

Hence, whilst one of Merchant's (1984) items was positively correlated to level of automation (influence on budget plans), the other items (such as involvement in budgeting) were not significantly correlated. As mentioned in Section 6.3.2., there are other related arguments for the negative relationship. A high TU environment may not be mitigated by a higher level of participation from the subordinate manager as the 'answers' may lie elsewhere for the superior managers to find. On the other hand, a low TU environment supposes that the subordinate manager may be able to provide the necessary input to the planning process.

In the case of H11, a high task uncertainty was predicted to have an inverse relationship with RAPM. When Briers and Hirst (1990) and Hartmann (2000) reviewed the evidence on the RAPM-TU link, they noted the difficulties in obtaining consistent results particularly when TU was hypothesised as a moderator or independent variable. Hartmann (2000, p. 465) reported a large number of failed hypotheses and replication studies that did not yield similar results and used the term "uncertainty paradox" (2000, p. 472) to describe it. In spite of the application of various recommendations (using TU for middle managers, RAPM measures refined), no significant relationship was found. As mentioned initially in Section 6.3.2, the use of RAPM is such a widespread one being enforced in all profit-maximising enterprises and consequently, the effect of TU appears negligible in influencing the extent to which superiors are using accounting performance measures.

6.6.2.5 The Direct Effects of Superior's Interactive Use of Controls on MCS

To date, empirical investigations into the influence of the superiors' style in using of controls remain scant. It was intended to be a more specific variable to explore the interactions between the superior and subordinate manager in the MCS context, in contrast to other variables such as leadership style or trust. There was strong case study evidence from Simons (1991, 1994) to back up the finding that senior managers may choose to use controls in an interactive vs. diagnostic mode. However, as explained in Section 6.2.6, the factor analysis procedure failed to generate one variable from the four items which were slightly adapted from Abernethy and Brownell (1999). Consequently, it was argued that it may be inappropriate to consider interactive and diagnostic use as the two extremes of one spectrum (style of use of controls). Therefore, the focus was now aimed at the level of interactive use of controls by the superior manager (labelled

INT – high/low). Technically therefore, Hypothesis H8, H10 and H12 cannot be accepted in their original formulation but the actual results are still significant and are now considered.

A positive relationship was found between INT and SOP, suggesting that a high (low) interactive style use of controls is associated to a high (low) use of detailed SOPs. Based on Simons' (1994) original discussions, managers perceived a high INT from their superiors when the latter involve themselves in the decisions and activities of their subordinates. This positive link seems to suggest that one of the consequences of having a high INT superior will be the establishment of further SOP controls, presumably in light of the interactions the superior has had with the subordinate manager and the SOP controls. This appears consistent with the 'hands-on management' approach described by Simons (1994) and as mentioned by Langfield-Smith (1997, p. 223), adopting an interactive style involves the testing of new ideas and the activation of organizational learning.

Similarly, a positive relationship was observed between INT and BP. As discussed in Shields and Shields (1998, p. 59), the theoretical literature contends that the cause of participative budgeting is basically one that is related to uncertainty or a superior-subordinate information asymmetry. However, the interactive 'nature' of the superior was seen as an implicit assumption in Shields and Shields' (1998) description of the rationale for participative budgeting. In other words, actions such as information sharing or exchange imply the 'participation' of the superior as well and INT is in this case a reflection of the superior's participation, from the point of view of the subordinate manager. In this respect, this result is consistent with the theoretical underpinnings of participative budgeting and suggests that the INT is an important factor towards encouraging a higher level of participation in the budgeting process by the subordinate.

Finally, a positive link was also observed between INT and RAPM i.e. a high (low) interactive superior would be linked to a high (low) use of RAPM. Simons (1991, 1994) description of the more 'interactive' superior manager does not make reference to a preferred reliance on accounting based measures. In previous RAPM studies (e.g. Hopwood, 1974; Merchant, 1985b, 1990), predictions were made on the relationships between the leadership style and RAPM but the initial Hopwood results (RAPM

matched with more considerate leaders) were not confirmed. A more relevant study for comparison is Barrett et al. (1992) which found that superiors tend to match their evaluative style with the style used in their own performance evaluation. This is referred to as the contagion effect (Hartmann, 2000, p. 465). Whilst there is probable predominance of financial measures in the performance assessment of the superior managers, there is no empirical evidence to suggest it in this study. However, this appears to be a sensible explanation as to the positive link between INT and RAPM in this case.

A final comment on the relationship between INT and control systems must be made. The use of the interactive style of management variable was queried at the level of functional managers and they were asked the relevant questions in relation to their immediate supervisor. In the previous studies (Simons, 1991, 1994; Abernethy and Brownell, 1999), the questions had been aimed at chief executive officers (CEOs) directly. Although the questions were adapted and pilot tested at the appropriate level, there is nevertheless the limitation that this may negatively affect the comparisons to the previous studies.

6.6.2.6 Direct Effects of TU and INT on Dysfunctional Behaviours

The last hypotheses for the direct effects (H13a, H13b, H14a and H14b) were directional ones and were formulated to test that the critical condition set out by Baron and Kenny (1986) for an intervening model is actually satisfied i.e. the relationship between the independent variable (e.g. TU) and the dependent variable reduces (e.g. DBIN) and becomes insignificant when the mediator (MCS) is added to the model. To the same extent that there were significant correlations between TU/INT and DBIN/DBGA, all the above-mentioned hypotheses are supported and the initial conditions for testing the intervening models were met.

However, it is noted that all the contextual variables were positively related to the two forms of dysfunctional behaviour. In other words, a high (low) task uncertainty and a low (high) interactive use of controls by the superior appear to cause a high (low) extent of dysfunctional behaviours (information manipulation and gaming). As already reported in the previous sections and the literature review, uncertainty is viewed as a central concept in management accounting and control research, particularly within the

contingency paradigm (e.g. Galbraith, 1977; Hartmann, 2000; Chenhall, 2003). This study has focused on TU to reduce the ambiguity associated with other uncertainty variables but it is observed here that there are some consequences for the managers' behaviour. Hirst (1983) found that task uncertainty played a significant moderating role in the relationship between RAPM and JRT but no direct relationship was noted. Jaworski and Young (1992) sought to examine the impact of the roles of information asymmetry, role conflict and job tension on managers' dysfunctional behaviour. They only found some positive link between job tension and dysfunctional behaviour. In addition, Merchant's (1990) study of data manipulation and management found a high incidence of dysfunctional behaviours and admitted that the difficult economic times (1990, p. 311) may have influenced the responses. Obviously, the past evidence appears quite limited and difficult to compare given the differences in the research designs and variables used.

Nevertheless, the results show a significant positive effect that as the task uncertainty increases, managers may react by engaging into dysfunctional behaviours. The extent to which this may occur depends on the application of the controllability principle (Hartmann, 2000, p. 471), whereby managers may be exempted from accountability and responsibility in times of high task uncertainty. However, this issue of controllability cannot be ascertained in the context of this study.

In contrast to some of the extant TU literature, there is considerably less research on INT although this has evolved in the past few years. As noted in Chapter 2, Simons (1994), Langfield-Smith (1997) and Abernethy and Brownell (1999) explicitly associate an interactive style of using controls as a positive practice, which needs to be encouraged in organizations. They build on Burchell's et al. (1980) notion of dialogue, learning and idea creation machine, whereby the MCS sub-systems are used for the continual exchange between top management and lower levels of management (Abernethy and Brownell, 1999, p. 191). The latter authors do acknowledge (1999, p. 192) that the interactive style in using controls is not costless because it requires more involvement and time from all parties concerned. In turn, this can also result in negative pressures on subordinate managers as they seek to address the 'interactive' nature of the superior managers. On the other hand, a less interactive style of using controls can also provide the environment in which managers may be encouraged to manipulate information or engage in gaming practices. Therefore, in spite of the observed

significant positive relationship between INT and dysfunctional behaviours, there are still unanswered questions as to why this would actually happen. Some tentative interpretations will be considered in the last chapter.

6.6.3. The Intervening Models (Model 1 Indirect Effects)

Hypothesis	Relationship	Direction of Relationship (if any)	Actual Results
Model 1a			
H15a	TU-SOP-DB	Significant Intervening	Significant only for DBGA
H15b	TU-BP-DB	Significant Intervening	Significant for both DBIN and DBGA
H15c	TU-RAPM-DB	Significant Intervening	Not significant
Model 1b			
H16a	INT-SOP-DB	Significant Intervening	Not significant
H16b	INT-BP-DB	Significant Intervening	Not significant
H16c	INT-RAPM-DB	Significant Intervening	Significant for both DBIN and DBGA
Table 6.26: Intervening Effects Hypotheses: Summary of Results			

The summary of the intervening hypotheses are shown in Table 6.25. A total of 12 different paths were tested (6 hypotheses x 2 forms of dysfunctional behaviour) and only five were found to be significant, based on Baron and Kenny's (1986) conditions and Sobel's (1982) statistical test. The models 1a and 1b allowed an examination of the role of MCS in encouraging or discouraging the extent of dysfunctional behaviours, in the presence of two contextual variables.

In the case of Task Uncertainty (Model 1a), the results firstly showed that TU has a negative relationship on the extent of detailed SOPs – high (low) task uncertainty links to a low (high) SOP - and in turn SOP was negatively related to gaming practices i.e. a high (low) SOP would cause a low (high) extent of gaming. More importantly perhaps, the significance of the intervening model implies that the direct enhancing effect of TU on DBGA is totally eliminated when SOP is included i.e. the existence of SOP is therefore relevant in controlling for the effects of TU but only in cases of low task uncertainty.

These results contribute to the MCS literature in terms of providing evidence on the effects of MCS in the context of task uncertainty. In addition, TU was modelled as antecedent variable rather than a moderating variable. To date, there is only one previous published study that used the intervening model linking contextual variables, control systems and dysfunctional behaviour (Van der Stede, 2000). However it solely focused on budgetary control style (a form of budget emphasis/RAPM variable), used strategy and past performance as antecedent variables and slack and managerial time orientation as forms of dysfunctional behaviour. However, in this study, RAPM was not found to be playing a significant role in mediating between TU and DBIN/DBGA.

In contrast to TU, Model1b presents a different picture as to the role of INT. As noted before in the direct effects section, there is a very strong impact of INT on RAPM and on DBIN/DBGA directly. Full mediation occurs in the INT-RAPM-DB paths, but in contrast to SOP and BP, RAPM enhances both forms of dysfunctional behaviour. The perceived interactive style of the superiors has caused an increased reliance on accounting performance measures which in turn increase the extent of the subordinate manager's dysfunctional behaviour. This brings further evidence on the negative consequences of financial- and short-term based targets, which were previously noted by authors such as Hopwood (1972), Otley (1978), Hirst (1983), Merchant (1990), Chow et al. (1996), and Van der Stede (2001).

This study again contributes to the literature by considering the effects of INT in the relationship between RAPM and dysfunctional behaviour. In addition, the links between INT and DBIN/DBGA via SOP/BP are also of interest. Both SOP and BP could not dampen the impact of INT on DBIN/DBGA. This can be interpreted as follows: the high interactive behaviour of superior managers is having dysfunctional consequences on the behaviour of subordinate managers and the use of SOPs and BP is not sufficient in reducing the extent of dysfunctional behaviour. This is further and new evidence on the 'dangers' of an 'over-interactive' superior manager in the context of his/her use of controls such as SOP and BP. This brings a potential link with the previous literature on the impact of leadership style on the effectiveness of MCS e.g. Brownell (1983b). Hopwood (1972, 1974) did develop arguments on the link between a low considerate and high initiating structure superior and the type of control systems. When one considers Simons' (1994) characteristics of an interactive superior, there are some similarities between a high interactive superior and a high initiating structure

leader. For example, “...ensuring that system is an important agenda to discuss with subordinates and... is a regular focus of attention by operating managers...” (Simons, 1994, p. 172) is testimony of such high initiating structure. On other hand, there are no discernable similarities between the interactive superior and the consideration dimension of leadership. In summary, the empirical evidence is quite suggestive that an interactive style of using controls may not necessarily be yielding positive consequences for the organization, at least from the subordinate manager’s point of view. At the very least, this finding brings into question the effectiveness of a high interactive style of a superior in using the three studied MCS sub-systems. However, it needs to be noted that a low interactive style is not necessarily synonymous with a diagnostic style as described in Simons (1991, 1994). Finally, it needs to be recognised that Dent (1990, p. 20) had been critical of Simons’ early accounts of this managerial behaviour and argued that these might be speculative.

6.6.4 The Moderation Model (Model 2 Interaction Effects)

The second model was tasked with re-examining the relationship between the MCS sub-systems and the two forms of dysfunctional behaviour in the presence of an institutional theory-based influence. The case-based evidence on the state and evolution of management accounting and control systems in organizations has become of increasing interest (e.g. Berry, 1985; Covalski et al., 1993; Abernethy and Chua, 1996). These studies demonstrated that managers and other organizational players are to some extent aware of the ritualistic and ceremonial roles of accounting tools and techniques and thus see ‘beyond’ the rational aspects and implications of these practices. The ‘legitimizing nature of controls’ variable was thus designed to reflect the extent to which managers would adhere to these attitudes in relation to their own organizational contexts and accordingly react in relation to the existence/influence of MCS in their departments.

The focus of Model 2 and the six related hypotheses were towards the existence of form (rather than strength) and monotonic interactions. Table 6.27 summarises the actual results:

Hypothesis	Relationship	Interaction	Actual Results
Model 2			
H17	LNC moderates SOP to DBGA	Positive (enhancing) and monotonic	Form interaction supported but non-monotonic
H18	LNC moderates SOP to DBIN	Not significant	Not Significant
H19	LNC moderates BP to DBIN	Positive (enhancing) and monotonic	Not supported
H20	LNC moderates BP to DBGA	Positive (enhancing) and monotonic	Form interaction supported but non-monotonic
H21	LNC moderates RAPM to DBIN	Positive (enhancing) and monotonic	Fully Supported
H22	LNC moderates RAPM to DBGA	Positive (enhancing) and monotonic	Not supported but strength interaction found*
<i>Table 6.27: Interaction Effects Hypotheses: Summary of Results</i>			
* Refer to Section 6.5.2			

Although only one hypothesis (H21) is formally supported, there are additional significant results that have been generated from the statistical analysis. Firstly, the institutional effects measured through LNC are found to have different implications depending upon the type of control sub-system and the outcome variables. For example, opinions about the legitimating nature of controls do not appear to moderate the negative effect of BP on information manipulation. In other words, the managers' attitudes to the control systems as legitimising and ritualistic instruments do not influence the information manipulation-reducing effect of budgetary participation.

However, when it comes to gaming practices, the initial negative relationship between BP and DBGA then becomes a positive one at higher levels of LNC. The same interaction is observed in the case of SOP as managerial beliefs on the 'bureaucratic' nature of SOPs are heightened. As stated by Richardson (1987, p. 343), accounting may be seen as legitimating device to the extent that it mediates the mapping between action and values. In this study, control systems (whether accounting-focused or not) structure the relations between two of the main actors in the organization e.g. functional non-accounting managers and supervising/top managers and focus on the perceptions of the functional managers in response to the control systems and the environment in which they believe they are operating.

The positive enhancing effect of LNC in the RAPM-DBIN relationship is suggestive of the stronger implications of LNC for organizations which have a higher reliance on accounting measures to assess the performance of their managers. This is compounded by the inherent bias that profit-maximizing organizations have for the accounting measures i.e. directors are generally assessed on profitability and shareholder value added: a clear outcome from the annual report 'ritual'. However, the absence of a form interaction for LNC in the RAPM-DBGA relationship is of some concern as one would have expected a similar result as in the case of DBIN. A strength interaction was observed in the latter case and this, as stated by Gerdin and Greve (2004, p. 311), does not necessarily mean that one should expect a form interaction.

The absence of previous empirical results on the significance of an institutional theory-led variable in an MCS prevents any further comparisons. However, the results are consistent with the case study findings of Perez and Robson (1999) which found instances of ritualistic and taken-for-granted behaviours by the various individual managers, particularly in the budget process. The case study research observed attempts by sub-unit or functional managers (e.g. Perez and Robson, 1999, p. 397-398) to enter in a 'gaming' process and the need to protect their own department. This confirms the possibility of legitimacy being an important concept not only for the organisation towards the 'external' environment, but also for sub-unit departments. Nevertheless, the evidence at least attests to the existence of managers' attitudes towards the usefulness of control systems in their activities.

6.7. Concluding Remarks

This chapter has presented the results for the study, in terms of the following aspects: response rate, profile of respondents, variable validity and reliability, and empirically considered the hypotheses formulated for direct, indirect (intervening) and the moderating effects. The final chapter will now elaborate on the implications of the findings, the limitations of the study and recommendations for future research.

Chapter 7

Conclusions and Recommendations

7.0 Introduction

This chapter will present the main contributions and implications for the MCS literature, arising from the empirical findings of this study. It has to be acknowledged that the present study was carried out and written over a number of years as a part-time PhD study. Thus, in parallel to this research study, a number of theoretical and empirical developments have occurred, which would have been of relevance to this research's objectives, design, hypotheses and/or findings. Within the key parts of the introductory, literature review, and hypotheses development chapters, these recent contributions have been incorporated in the text but more importantly, they also form an integral part of the overall analysis on the main findings of this study in this chapter. Finally, these main findings and associated analysis together with the limitations of the study will form the basis for the recommendations for future research.

7.1 Main Contributions to the Literature

7.1.1. Validating information manipulation and gaming measures

The study of management control systems and its dysfunctional consequences is not a new endeavour. Many seminal studies on management control systems such as Agryis (1952, 1953), Hopwood (1972), Onsi (1973), Otley (1978) and Hirst (1981; 1983) have documented and focused on the dysfunctional consequences of control systems - particularly those relating to budgetary systems. However, spurred by the various conflicting findings and resulting debates, the MCS literature became more narrowly focused on the specific dysfunctional consequences of (i) budgetary slack, arising from budgetary participation and (ii) job-related tension and stress, arising from RAPM. A separate but smaller set of studies focused on broader budget-based control systems (e.g. Merchant, 1990; Chow et al., 1996) and their effects on specific instances of dysfunctional behaviour such as data manipulation, short-term orientation and invalid data reporting. Although there were some valid results from the latter studies, questions arose as to the reliability of the measures (Merchant, 1990). In addition, there was little empirical evidence on the broader conceptualisations of dysfunctional behaviour, as initially identified in Birnberg et al. (1983), and how far they were related to the

operation of control systems. In this respect, Jaworski and Young's (1992) measures of dysfunctional behaviour provided the starting point to design two broader measures of dysfunctional behaviour - namely information manipulation and gaming - whilst addressing the validity/reliability issues inherent in collecting data on such fairly controversial issues. The seven items factored as expected into the two pre-defined constructs and there was little indication of inconsistent or non-responses. The reliability tests were very satisfactory for both variables. In conclusion, the theoretical conceptualisations of information manipulation and gaming appear to have been successfully operationalized and thus could be of use to future MCS research, particularly in the study of antecedents and consequences of dysfunctional behaviour.

7.1.2. SOPs as a mechanism *constraining* gaming practices.

From the literature review, it became apparent that questions focusing on the antecedents, consequences and generally the role, of SOPs in companies have attracted considerably less research attention than other control systems (e.g. BP and RAPM). SOPs were often included as a sub-component of control systems (Merchant, 1982; Fisher, 1995; Chow et al. 1996) and being regarded as a 'mechanistic' system. Indeed, early attempts at measuring SOPs adopt a fairly simplistic view by using the number of pages etc (e.g. Macintosh and Daft, 1987). At the same time, previous studies have only been suggestive of the link between SOP and task uncertainty, by considering variables such as 'knowledge of the transformation process' (Rockness and Shields, 1984) and departmental interdependence (Macintosh and Daft, 1987), as possible antecedents to the design/use of SOPs. In addition, the links between SOP and dysfunctional behaviour are only alluded to in Chow et al. (1996), in that the set of controls studied was acknowledged to be too broad to capture specifically the effects of SOPs on dysfunctional behaviour (1996, p. 189). Furthermore, the forms of dysfunctional behaviour studied by Chow et al. (1996) were focused on 'discouragement of new ideas' and manipulation of performance measures', which were found to be positively associated to the level of control tightness (i.e. could be interpreted as a higher level of SOPs).

By uncovering, and using a clearly delineated variable for SOPs, the findings (Table 6.10) from this study provide evidence on how SOPs contribute significantly to the reduction of gaming activities by managers. It has already been acknowledged that this

could only apply to a defined range of SOPs, and is thus consistent with Hirst's (1983) argument on the possible curvilinear relationship between control systems and dysfunctional behaviour. The result that SOPs can have little effect on a manager's extent of information manipulation was hypothesised and this result is not in line with Chow et al. (1996)'s previous findings. However, a strict comparison to this latter study may be difficult to sustain given the different measures used - particularly in relation to a very broad conceptualisation of SOP controls used in Chow et al. (1996). The relevance of TU in the design of SOPs is confirmed as a variable of interest in that a low level of TU appears to be appropriately matched to a high level of SOPs, thereby reducing the potential for dysfunctional behaviour (Section 6.6.3). This brings new evidence on the need to design appropriate levels of SOPs to the perceived level of task uncertainty faced by the managers/departments, with a view to constraining gaming behaviours. Finally, the effect of an interactive style of using controls was found to be positively linked to a higher level of SOP but there was no support for an intervening model (Section 6.6.2.5).

In essence, one may argue that the effects of SOPs have generally been taken for granted and assumed to operate universally in restricting managerial flexibility and action. SOPs exist and persist in many forms and in many organizations and are very often the most visible reflection of emerging practices and technologies (e.g. total quality management procedures and other quality standards dictated by ISO – International Standards Organization). The absence of, or non-compliance with, SOPs has also been associated to many instances of fraud and mismanagement. Thus, in a 'narrow' context and understanding, they are the boundary systems (internal controls) that maintain the integrity of the organization's information systems and of its resources. For instance, Widener (2007) pointed out that a boundary system is often legally required by stock exchange authorities and recently in the US, through the enactment of the Sarbanes-Oxley Act (2007, p. 762). However, in a 'broader' context and higher level of management, they could also act as a boundary system that "...delineates the acceptable domain of strategic activity for organizational participants" (Simons, 1995, p. 39). Notwithstanding the fact that Simons' (1995; 2000) conceptualisations were devised in the context of strategic implementation involving senior/top management level, it remains that his writings do have some relevance to middle management level, particularly in relation to the notion that a boundary system communicates the *actions* that employees should avoid (Widener,

2007, p. 759). Hence, a boundary system allows employees to innovate and achieve within certain pre-defined areas, but it does so in a *negative* way through the constraining of behaviour. Consequently, and in light of the results, one key conclusion is that it would be appropriate to label SOPs as an effective *constraining* mechanism (possibly in an almost coercive way) aimed at reducing managerial dysfunctional behaviour. In addition, the likely influence of task uncertainty in the design of such boundary systems needs to be taken into consideration. One has also to qualify this statement in that this boundary system appears appropriate only in dealing with gaming (*management actions*) and not with the information manipulation behaviours. It may be possible that other boundary mechanisms (e.g. ethical codes of conduct) have an influence on the quality of information being provided by managers.

Furthermore, the additional finding of a positive relationship between the superior's interactive style of using controls and SOPs may appear at odds with the expectations of a preference between the diagnostic (i.e. less interactive) use of controls and SOPs. However, the changes made to the variable measurement of INT for this study implied that a high (low) interactive use of controls could no longer be equated to a low (high) diagnostic use of controls (Refer to Section 6.7.1). These are not viewed as the two extremes of a spectrum relating to one construct but rather as two different constructs. In other words, superiors could be perceived to have both styles of using controls with varying effects on the design, and consequences, of control systems. Henri (2006) and Widener (2007) appear to give credence to this observation by measuring these variables separately whilst others (e.g. Bisbe and Otley, 2004, p. 731) used diagnostic and interactive anchors in the measuring of their variable. In this present study, the results indicate that the higher the interactive use of controls, the higher the level of SOPs in the organization. One possible interpretation may be obtained from Simons (1991). Relying on field data from 30 US businesses, he postulated that a highly interactive manager can focus intensively on certain control systems in specific strategic settings but only for limited periods, or he/she risks information overload, superficial analysis, lack of perspective and potential paralysis (1991, p. 59). As such, a highly interactive manager can possibly be expected to rely on SOPs in these particular times to 'handle' the more routine matters, given the relevance of SOPs as a boundary system. Furthermore, this finding could be indirectly indicative of the so-called dynamic tension that would originate from the use of the different levers of control (Simons, 1995; Henri, 2006; Widener, 2007) but there is no evidence to point to the

consequences of such tension (e.g. no intervening effect to an outcome variable such as dysfunctional behaviour). Finally, it is quite possible that the so-called direct relationship between INT and SOPs may in fact be mediated by another variable i.e. another control system or a contextual variable. This therefore calls for further research into the links between the interactive use of controls and SOPs and/or other boundary systems and the consequences of the interaction between these variables.

7.1.3. BP as a mechanism *defusing* dysfunctional behaviours

In spite of the numerous empirical and theoretical studies over nearly five decades, the debate on the usefulness, antecedents and consequences of a budgeting process – including the specific practice of budgetary participation - remains of particular interest to accounting researchers (e.g. Shields and Shields, 1998; Fisher et al., 2002a; Covaleski et al., 2003; Davila and Wouters, 2005; Marginson and Ogden, 2005). This continued interest is related to the fact that budgeting is one of the most visible accounting tools in everyday life and a central plank of most organizations' control mechanisms (Otley, 1999, p. 370). It operates in various forms and in various organizations and whilst most textbooks invariably associate it with 'good' management and planning of activities, early behavioural evidence suggested that the use of budgets (particularly imposed ones) were impacting negatively on managers' behaviour (stress and tension) and on organizational effectiveness (e.g. Argyris, 1952; Swieringa and Moncur, 1972; Hopwood, 1976). The bureaucratic and political implications of the budgeting process are also well documented (e.g. Covaleski and Dirsmith, 1983; 1988) and are sometimes used as arguments for budgeting practices to be radically curtailed/adapted or altogether abolished (e.g. Hope and Fraser, 2003).

Furthermore, these criticisms have been enhanced in light of the predictions from the agency perspective (e.g. Lowe and Shaw, 1968; Young, 1985) and the possibility that higher levels of BP will lead to higher levels of slack. The reasons for such behaviour have been associated to the need by managers to show a better performance (Kren, 1997), to facilitate shirking (Baiman and Demski, 1980), and to protect against uncertainties (Onsi, 1973). Some authors also argue that slack can be actually positive in the long term and/or organizationally (Onsi, 1973; Argyris, 1990; Davila and Wouters, 2005). However, the findings of this study go beyond this point and the 'limited' notion of slack or whether the latter is reduced or increased by BP. In their

review of the BP literature, Shields and Shields (1998) outline the various reasons for participative budgeting and its possible antecedents. The reasons relate to vertical information sharing, coordination of interdependencies and motivation/attitudes (1998, p. 60). Whilst the first two reasons emphasise the narrow functional and cognitive aspects (supply of information and managerial coordination) of BP, the last one implies there are broader and more complex implications for the manager and the organization alike.

Although the various hypotheses on the effects of BP were initially informed by the agency perspective, the findings (Table 6.14. and Section 6.6.2.2) are compelling enough to review one's perspective on the implications of participative budgeting. The finding that BP both reduces information manipulation and gaming (as broader managerial phenomena) could be viewed to be more consistent with the psychological theory-based research and the previously mentioned impact on motivation/attitudes. In particular, the concept of value attainment (Locke and Latham, 1990) asserts that satisfaction and morale can be improved simply because of this process (act) of participation that allows a subordinate to experience self-respect and feelings of equality arising from the opportunity to express his/her values (Shields and Shields, 1998, p. 59). Whilst the links between BP and satisfaction/motivation are well documented, it is now apparent that the same value attainment concept can as well have *broader* and *positive* implications on how managers perceive, or actually engage in, any form of dysfunctional behaviour. Hence, perhaps in contrast to a *limited* and *negatively-oriented* 'constraining' effect that SOPs have on dysfunctional behaviour (gaming), the above findings suggests that BP operates more *comprehensively* and more *positively* - beyond the realm of the traditional budgeting process - in 'defusing' instances of dysfunctional behaviour (information manipulation and gaming) amongst managers.

However, the above conclusions are made conditional on the presence of contextual factors, particularly on the influence of task uncertainty. Again, the relevant hypothesis was guided by cognitive-led arguments in that a high level of task uncertainty was translated into an increased 'functional-led' need for more information to share with supervisors and to coordinate interdependencies, hence a higher level of BP (Sections 6.6.2.4 and 6.6.3). In addition, Shields and Shields (1998, p. 60) also contended that when BP existed primarily for motivational reasons (as seems to be the case from the interpretation above), then the extent of BP practices will be positively associated with

task uncertainty. The authors' own exploratory study (Shields and Shields, 1998) finds empirical support for this proposition (1998, p. 62). However, it is the opposite effect which is detected in this study, namely that a high (low) TU leads to low (high) BP. This then raises questions as to the motivational value and overall relevance of BP in times of high task uncertainty. If managers are confronted with high levels of TU, this would imply that there would be little to gain from the budgetary participation exercise, possibly in light of the inherent limitations of a 'static' budgetary process in responding to continuous uncertainties in the manager's work environment. In turn, this would mitigate the ability of BP to retain its overall motivational value, specifically in this case in terms of preventing dysfunctional behaviour. This is a significant caveat to the initially optimistic and universal consequences of BP. However, this does not preclude the possibility that the company and its senior management could depend upon an alternate dialogue/debating process that could alleviate the uncertainties arising from the task requirements, thereby maintaining managerial motivation.

In view of the recent interest in Simons' (1995; 2000) LOC framework and the interactive/diagnostic conceptualisations, a further finding worthy of mention is the relationship between the interactive style of using controls and BP. A positive relationship was hypothesised between an interactive (diagnostic) and high (low) BP. Due to the changes in variable measurement for INT, the actual results can only bring support as to the relationship between a high (low) interactive style of using controls and high (low) use of BP (Table 6.14). Indeed, the initial descriptions of a highly 'interactive' manager appeared to show an ideal fit with the budgetary participation exercise. For example Simons (1991, p. 55) states:

“Although financial planning and budget data are used to frame the discussion, the debate centres on the effects of competitor actions, the timing and success of new product roll outs and withdrawals,...and consideration of appropriate responses to new market opportunities and threats”.

In other words, the superior's higher interactive use of controls is indicative of the 'mindset' of the supervising manager (at least as perceived by the subordinate manager) in which the budgetary participation process is being designed, operated and acted upon, with the aim of fostering organizational dialogue, debate, and information exchange. At the same time however, this result does not preclude the fact that a high diagnostic use of controls can also be positively related to a high level of BP. Purely as a way to illustrate this possibility, one can consider the correlations reported by Henri

(2006, p. 541) between the diagnostic and interactive use of performance management systems (PMS) and the consequences predicted in Simons (1995; 2000), namely innovativeness and organizational learning. Whilst Henri (2006) hypothesised a negative relationship between the diagnostic uses of PMS to these variables, the correlations indicate a positive and significant association. Therefore, there is a need to dwell in more depth on the effects of interactive and diagnostic styles – as well as the combination of both styles - on the BP process.

7.1.4. RAPM as a mechanism *enhancing* dysfunctional behaviours.

Overall, the dysfunctional effects of RAPM were probably the most expected of the results, in consideration of the previous findings and expectations (e.g. Hopwood, 1972; Onsi, 1973; Hirst, 1983; Merchant, 1985c; Merchant, 1990; Hughes and Kwon, 1990; Lal et al., 1996). Most of these studies have focused on various outcome variables such as job-related tension (JRT), accrual/data manipulation, short-term thinking, discouragement of new ideas and budgetary slack. This study thus provides more recent empirical evidence supporting the claim that a reliance on accounting performance measures leads to the ‘broader’ dysfunctional effects of managerial gaming and information manipulation (Table 6.12 and Section 6.6.2.3). The fact that RAPM privileges outcomes rather than processes also points to the ‘diagnostic leanings’ of RAPM and the expectation that this may lead to more negative consequences (Simons, 1995: 2000). Informed by the more recent issues relating to the measurement and operationalisation of RAPM (Vagneur and Fakiolas, 2000; Otley and Fakiolas, 2000; Hartmann, 2000), this study also successfully adapted the *relative* measure of RAPM (accounting as a ratio of non-accounting measures), as initially suggested by Harrison (1992; 1993). Hartmann (2000) had previously highlighted the problems relating to the use of diverse RAPM measures over time and the hindrance this causes to theoretical developments and understandings of RAPM (2000, p. 466).

Whilst the initial arguments by Hopwood (1972) placed the blame on the inherent limitations of accounting-based measures (such as budget targets being incomplete, lacking precision, outcomes-based and short-term oriented) in *potentially* causing dysfunctional behaviour, the author subsequently asserted that it is more the undue reliance on such measures (in specific contexts) which *actually* causes the dysfunctional behaviours. The subsequent operationalisation and long standing use of

RAPM (or budget emphasis) in the literature thus reflects this argument and this, in many ways, has steered the debate on the relevance (or not) of relying on accounting performance measures e.g. the recent use of a new variable known as ‘opinions about the appropriateness of accounting performance measures’ by Hartmann (2005) is a case in point. However, evidence on whether the ‘intrinsic’ features¹²⁷ of accounting-based performance measures can also cause (dys)functional behaviour has been less of an interest - although extant evidence on the dysfunctional behaviour of RAPM has often been equated to mean that accounting-based measures are intrinsically ‘bad’. At this juncture, this therefore suggests a need to re-orient the research objectives and design in seeking to gather more empirical (and contemporary) evidence on the consequences (both positive and negative) arising from the *intrinsic* features of accounting performance measures subject to specific contextual variables, rather than focusing purely on their actual use or reliance by senior managers.

The next contribution relates to the initially unexpected findings on the links between the superiors’ interactive use of controls and RAPM (Table 6.15). Since RAPM involved a reliance on short term, outcome-oriented and accounting-based measures, there was an expectation that this would suit a more diagnostic (i.e. less interactive) style in the use of controls. Again, the actual measurement of INT in this study, and the implication that diagnostic and interactive uses of control can prevail independently (Widener, 2007; Henri, 2006) in an organization, preclude one from reaching any conclusion on the consequences of a (high or low) diagnostic style in the use of controls on RAPM. On the other hand, the empirical results assert that a high interactive use of controls is associated to a higher level of RAPM. A possible interpretation - similar to the point made earlier on the links between INT and SOPs - is that a highly interactive manager depends on the feedback and diagnostic feature of RAPM to keep an ‘overall look’ on the activities of the subordinate managers and departments. This is consistent with the previous arguments that there are complementarities between an interactive style of using controls and the so-called diagnostic/feedback features of RAPM, thereby leading to a state of dynamic tension

¹²⁷ A recent illustration of this interest in the intrinsic - but more positive - features of budgets was put forward in Marginson and Ogden (2005). The authors are critical of the literature’s focus on the negative aspects of budgets and contend that budget targets convey *in themselves* a sense of certainty and clarity, thus acting as an antidote to role ambiguity (2005, p. 436-437) and enhancing managerial commitment to the budget targets (2005, p. 451). Their findings thus bring credence to the significant and inherently positive features of budgetary-based measures and targets, whilst acknowledging the influence of contextual variables in mitigating or enhancing the effects of these intrinsic features.

that will enhance organizational capabilities (Widener, 2007, p. 760; Henri, 2006). However, this dynamic tension does not necessarily 'generate' positive outcomes. For instance, Henri (2006) did not find any support for the dynamic tension variable in his study and he suggested that the negative dynamics to the tension can in fact overpower the positive ones. Furthermore, he mentions the possibility that this tension can trigger change while simultaneously activating defensive routines that inhibit change (2006, p. 547). The reference to defensive routines (Argyris, 1990) was viewed as very topical to the present study in that the results show a significant interaction between INT and RAPM in enhancing both forms of dysfunctional behaviour (Chapter 6, Figures 6.4a and 6.4b). Furthermore, and building also on Argyris' (1990) comments, Tuomela (2005, p. 312) highlights the *threatening* characteristic of an interactive use of a performance management system, although he considers this would arise when such system would be grounded in detailed non-financial information (as opposed to financial ones for a diagnostic use). Although this present study was designed and conducted prior to Henri (2006) and Tuomela (2005), this finding nevertheless provides empirical support – albeit in a rather indirect fashion - to the argument that the dynamic tension as well as interactive use of controls can not only lead to positive consequences (as initially predicted by Simons) - but also to negative ones.

A final comment relates to the absence of a significant relationship between task uncertainty and RAPM (Table 6.15). This can be viewed as a significant departure from the long-standing arguments and findings on the relevance of uncertainty (task and environmental) in the design or influence of RAPM - particularly in relation to its overall effects on the extent of managerial dysfunctional behaviour (e.g. Hirst, 1981; 1983; Hayes and Cron, 1988; Ross, 1995; Hartmann, 2000; Hartmann, 2005). In particular, Hartmann (2000) contends that uncertainty is a central concept in the RAPM contingency framework, as conceptualized previously by Galbraith (1973; 1977). Hartmann (2005) recently provided empirical results supporting the relevance of both environmental and task uncertainty, albeit with opposite effects on RAPM (positive for EU and negative for TU) and in the presence of personality characteristics (i.e. tolerance for ambiguity). According to him (2005, p. 258), any theory that suggests singular relationships between 'uncertainty' and budgets or budget-based measures is incomplete. To some extent, this may provide an explanation of the lack of direct relationships between TU and RAPM. For instance, the effects of TU can be more complex than initially hypothesised and may interact more with personality-based

variables (such as tolerance for ambiguity, locus of control) in influencing RAPM, as suggested by Hartmann (2005) and Chenhall (2003, p. 158). In addition, one may also question whether TU needs to be examined in relation to the *intrinsic* features of accounting measures, as discussed in the initial part of this section.

7.1.5. Validating a ‘legitimacy’ variable within a functionalist model

Chenhall (2003, p. 159) argues for the inclusion of more interpretive and/or critical elements in such studies, in an attempt to better inform the traditional functionalist model - which has dominated in many ways ‘mainstream’ management control research. While he suggests that there is still more to ascertain from the wide array of functionalist-oriented theories from the economics, psychology and organizational literature (e.g. agency, population-ecology), he contends that the contingency-based research has not relied on, or applied, the more interpretive and critical theories (2003, p. 159). At the same time, these are being increasingly validated by the findings from case study research¹²⁸. Although Chenhall (2003, p. 160) acknowledged the caveat that it may be difficult to combine these so-called ‘alternate theories’ with the traditionalist functional model, he concludes that many of the insights concerning for example the role of institutions within society on the adoption of MCS can be combined readily with contingency concepts (2003, p. 160). It is thus in this spirit that one must consider the exploratory-oriented findings of this study (Section 6.6.4), particularly in addressing the tenets and implications of the institutional perspective and the associated concept of the legitimating nature of controls (LNC).

Essentially, institutional theorists contend that organisational environments are characterised by the elaboration of rules and requirements to which individual organisations must conform if they are to receive support and legitimacy (Scott and Meyer, 1983, p. 149). The concept of legitimacy has gained popularity and validity on its own in management and administrative research (Suchman, 1995; Deephouse, 1996), namely for example in the study of accounting practice in context (e.g. Burchell et al., 1980; Richardson, 1987; Carruthers and Espeland, 1991), in understanding voluntary disclosures in company annual reports (e.g. Deegan, 2000; 2002), and in examining the reasons for the implementation of corporate governance

¹²⁸ For example, one can refer to Baxter and Chua (2003) for a more detailed review of the various alternative management accounting theories and the associated case evidence.

practices/disclosures (e.g. Woodward et al., 1996; Aguilera and Cuervo-Cazurra, 2004). This conformity for the ‘sake’ of legitimacy is typically expected to be achieved without consideration of whether such practices are actually effective or beneficial to the actors in the organization. As such, the perceptions of the individual actor (e.g. manager) are not considered critical to these theoretical strands since it is rather the collective behaviour of organizations and of its actors in response to social and institutional forces that matters. However, the unit of interest for the behavioural-inspired and contingency-based MCS research remains the individual manager. As such, and apart from the evidence gathered from case studies, there appeared to be very little cross-sectional empirical evidence on whether (and the extent to which) individually managers perceive control systems to be legitimating devices. In this respect, the questionnaire items (Chapter 6, Table 6.8) indicated a reasonable range of mean responses, thereby revealing some agreement to the fact that control systems serve symbolic and legitimating motives but these are not necessarily viewed as the primary motives for control systems as evidenced by the mixed mean responses and variability levels. Furthermore, only two of the three items factored satisfactorily, which was mostly explained by design issues with the third item. Interestingly however, there were weak non-significant correlations between LNC variable and other variables measured in this study i.e. control systems, traditional contingency variables and the dysfunctional behaviour variables, suggesting there is little evidence of direct relationships (and confounding effects) between the surveyed ‘functionalities’ of control systems and the legitimating motives put forward. Overall, this partially shows that an exploratory-led operationalisation of a legitimacy variable has yielded satisfactory results and thus demonstrates that there are opportunities in developing questionnaire-based measures, as informed by the theoretical principles, arguments and concepts from the institutional and legitimacy perspectives.

Early studies such as Cyert and March (1963) already highlighted the ‘ceremonial’ or ‘ritualistic’ nature of the budgetary system and considered the budget as “...*both the substance and result of political bargaining processes that are useful for legitimising and maintaining systems of power and control within organisations*” (cited in Covalleski and Dirsmith, p. 1, 1988). In addition, Perez and Robson (1999) found instances of gaming practices in an organization as well as ritualistic and taken-for-granted behaviours by the various individual managers. In this study, the institutional-led concept - known as the legitimating nature of controls (LNC) - was found to be a

moderator variable in some of the MCS-DB links, thereby providing an empirical confirmation of some of the previously mentioned case study observations. Firstly, whilst gaming behaviours appeared to be significantly constrained by SOPs, the presence of a higher agreement by managers to the fact that controls are merely legitimating devices causes the constraining effect of SOPs to be gradually 'loosened' and eventually reversed (non-monotonic relationship) i.e. a high level SOPs will eventually encourage gaming behaviours. This can be interpreted as a significant dysfunctional reaction to the increasing use of 'bureaucratic' nature of SOPs internally by individual managers, as opposed to what the organization 'expects' from a higher level of SOPs, namely that they are beneficial both in terms of functionality (control managers) and legitimacy (conferring social acceptance from actors and participants). This interpretation of such managerial behaviour can be also tentatively associated to the previously mentioned expectation from the contingency literature (Hirst, 1983, refer to Section 7.1.1) that there is possibly a U-shaped (non-linear) relationship between control systems and dysfunctional behaviour. To my knowledge, this remains to be empirically supported (refer to Section 4.1.1) although the existence of such relationship remains intuitively strong i.e. it would be difficult to expect the linear relationships to be valid at extreme levels (i.e. very high or near zero levels of SOPs). However, in consideration of these moderating results, one may be tempted to conclude that the consequences of SOPs on gaming at extreme levels may be best explained by how managers perceive these controls to be primarily legitimating devices or not.

The fact that a similar moderating non-monotonic effect was observed for BP and gaming (Table 6.27) brings further evidence as to the effects of LNC on the extent of managerial dysfunctional behaviour. In contrast to the study of SOPs, there is a number of interpretive and institutional-led case studies that have focused, and/or documented, on the symbolic, legitimating, political and power implications of the budgeting process, and particularly on the notions of a 'democratic-led', 'devolved' subordinate involvement and empowerment (e.g. Cyert and March, 1963; Meyer, 1983; Covaleski and Dirsmith, 1983; Covaleski et al. 1985; Brunsson, 1989; Perez and Robson, 1999; Moll and Hoque, 2004). The recent case study into the introduction of a budget system in a university (Moll and Hoque, 2004) demonstrated the continued relevance of legitimacy in terms of the ability of the new budget model to impart a sense of efficiency to management operations (2004, p. 26). However, the authors also document individual resistance and dysfunctional behaviours from managers (creation

of slack budgets, poor performance, negative attitudes towards management), due to their perceptions on the symbolic and power-related implications of the budget. Thus, this study contributes to the existing case evidence on budgets and legitimacy by providing empirical and quantitative-based evidence on how legitimating perceptions amongst functional managers can override the ‘rational’ motivational consequences of the budgetary participation, particularly on the extent of gaming practices. However, it has to be acknowledged that the absence of moderating effects of LNC in the relationship between BP and information manipulation behaviours hinders the validity of the above as an overall interpretation. Nonetheless, the existence of a (weak) strength interaction (Section 6.5.2) i.e. the negative coefficient between BP and DBIN is lower at high LNC levels as opposed to low LNC levels, suggests there are indications of similar effects for the information manipulation behaviours.

Finally, the contributory effects of LNCs are also (partly) confirmed for the RAPM variable. In contrast however, the moderating effect of LNC on the RAPM-DBIN level is a monotonic one (Section 6.5.3.2) i.e. managers’ perceptions of the legitimating nature of controls have a constant *enhancing* effect on the existing positive relationship between RAPM and information manipulation. The institutional theory-led literature has given some specific attention to use of accounting measures in organizations and these can be subsumed within the category of accounting practices that are often used to convey the appearance of rationality and efficiency (Burchell et al., 1980; Feldman and March, 1981; Ansari and Euske, 1987; Carruthers and Espeland, 1991; Jang, 2005; Potter, 2005). For instance, as a result of a global demand for an objective and scientific accountability model, Jang (2005, p. 298) asserts that accounting practice (including the use of accounting measures) - by virtue of their quantification and calculation - has gained ‘prestige’ as a result of the perceived ‘objectivity’ of numbers and its ability to make activities (and thus actions or management performance) visible in economic terms. This last point is reminiscent of Roberts and Scapens’ (1985) comments:

“Accounting is significant in organizations, not just as a functional specialism alongside production, marketing etc, but because it frequently provides the common language through which the activities of engineers, salesmen and so on are integrated and assessed” (1985, p. 450).

At the same time, this assessment of managerial performance can also be analysed as a decision by the senior manager, who must be seen as reaching a decision following the use of so-called ‘objective’ information - as a “....*representation of competence and*

reaffirmation of social virtue” (Feldman and March, 1981, p. 177; also in Brunsson, 1990, p. 58). As such, decision-makers and organizations hope to legitimate their decisions via the demand for accounting performance measures, irrespective as to whether the reliance or not on such measures is functionally appropriate, adequate and/or complete for the subordinate managers and for the organization as a whole. Indeed as suggested by Potter (2005, p. 270), *how* the accounting-based evaluation is done is less important than the fact that it *is* done. The findings relating to LNC and RAPM (i.e. monotonic form interaction for information manipulation and a significant strength interaction for gaming i.e. refer to Table 6.27 and Section 6.5.2) indicate that subordinate managers perceive such reliance on accounting measures to be reflecting strongly such legitimating and symbolic motives. At their level, these legitimating and symbolic motives are perceived differently in that the subordinate managers appear encouraged to engage in dysfunctional behaviours. Therefore, in considering the sum of these findings, one can conclude that a manager’s perception on the legitimating nature of controls acts in combination with the existing control systems towards *intensifying* the extent of dysfunctional behaviours.

In terms of the wider implications of these findings, there was already an increasing voice in the literature supporting the relevance of institutional theory and its principles in management accounting and control (e.g. Scapens, 1994; Carruthers, 1995; Bhimani, 1999; Chenhall, 2003; Potter, 2005) and more recently in the specific context of management accounting change (Nor-Aziah and Scapens, 2007; Dambrin et al., 2007). As mentioned by Baxter and Chua (2003, p. 100), there has been an explicit movement in organisational theory and sociology towards cognitive and cultural explanations of institutions, focusing on the meaning and accomplishment of various rules that structure behaviour in organisations and society. Hence, rules embodied in control systems - such as SOPs, budgetary participation, and the reliance on accounting performance measures - are seen as ‘rational myths’ that could confer social legitimacy upon organisational participants and their actions (Covaleski and Dirsmith, 1983; 1988; Covaleski et al., 1993; Abernethy and Chua, 1996) but these appear to be differently perceived at various intra-organizational levels. From these various writings and as evident in the empirical results achieved in this study, it is apparent that legitimacy/legitimation arguments on the existence of particular organization structures (such control systems) are not viewed as a *de facto* rejection of the functional (or efficiency-led) motives. The legitimation interpretation can obviously be trumpeted as

being the more relevant one but crucially, these two explanations could still be seen as competing with, and complementing each other. Whilst it can be concluded there is no *a priori* incompatibility in considering the legitimacy argument within the functional-led contingency model, it is acknowledged that more theoretical-led refinements and empirical replications are needed. In particular, the assumption that the existing controls have not themselves been established as a result of these legitimating perceptions is a notable theoretical and empirical challenge. Whilst the perceptions on the legitimating nature of controls were observed as being (directly) independent of, and un-related to the existence of the control systems (Table 6.9), there is an inherent complexity in the dynamics of how institutional forces operate and a need to examine in more detail the implications of such a relationship when developing models/variables involving dynamics of isomorphism.

7.2. Limitations of the Study and Resulting Research Opportunities

In the process of meeting the main research questions and objectives, several aspects in the study may limit the scope of the findings. In addition, the reliance on more recently published research could have addressed some of these limitations. At the same time however, many of the issues mentioned can be turned into opportunities for subsequent research and/or further refinement.

7.2.1. Questionnaire Response Rate and Statistical Methods

The percentage response rates for the survey questionnaire were not as high as expected and this has influenced several intended aspects of the study. The sources of information for the manufacturing companies (especially internal management structures, names etc) were limited for the Australian sample. Although up-to-date databases (such as Kompass Directory) existed for the manufacturing companies, the reliability of information was still not fully satisfactory as shown by the number of returned questionnaires. In an attempt at improving the generalizability of the findings, the above details were deemed necessary to ensure the use of a random cross-sectional sample of respondents rather than relying on convenience sampling, the latter being a popular practice in management accounting research (Van der Stede et al., 2005, p. 668). However, as earlier discussed in Chapter 2 (Section 2.8.1.2) and again referring to the comments by Chenhall (2003) and Birnberg et al. (1990), an inevitable trade off

occurs between ensuring a maximum response rate in a convenience sampling strategy compared to ensuring the maximum chances for generalizable results in random sample strategy. This study has focused on the latter whilst applying the recommended protocols relating to pre-testing, follow-up and the use of incentives as previously recommended in Dillman (1978) and reinforced by more recent authors (Young, 1996; Van der Stede et al., 2005). Nevertheless, in spite of the low percentage response rate, the number of valid completed questionnaires was, overall, adequate to meet the research objectives.

In light of the above, the initial intention to test the intervening models using the Structural Equation Modelling (SEM) technique had to be reviewed, in consideration of the caveats of small sample size (Jaccard and Wan, 1996). In lieu, the ordinary-least squares (OLS) regression method was implemented for both the path analysis and moderated regression analysis (MRA). However, an alternative and more robust strategy could have been the use of partial least squares (PLS). According to Hartmann (2006, p. 34 and 2005, p. 254), this technique is similar to covariance based structural equation modelling techniques (e.g., LISREL, EQS). PLS is a second generation statistical technique that allows testing causal models with multiple independent, mediating and dependent variables with multiple indicators or measures per variable. PLS resembles ordinary least squares regression with regard to output and can be used in a similar way for path and moderating models (Hartmann, 2005). In addition, PLS allows smaller sample sizes than covariance-based models and does not rely on the many stringent assumptions implicit in the use of OLS. This technique has been recently used in other MCS-related research (e.g. Mahama, 2007; Abernethy and Bouwens, 2005).

Nevertheless, it is also noted that in addressing this research objective and question, the path analysis technique was applied more rigorously, particularly in the light of the criticisms of solely depending on Baron and Kenny's (1986) conditions. In this case, the path-analytic procedures set out by Preacher and Hayes (2004) and the use of Sobel's (1982, 1986) test were implemented to assess the statistical significance of the indirect effects - an aspect which has been mostly taken for granted (rather than being formally tested) in previous path-analysis based MCS studies. It is also believed that statistical pitfalls associated with the analysis of moderation or interaction models, as extensively documented in Hartmann and Moers (1999, 2003) and Gerdin and Greve

(2004), have been addressed in this study. In particular, the identification of *strength* vs. *form* interactions has not been previously emphasized in most of the MCS research that relied on moderation models.

7.2.2. Interactive vs. Diagnostic Style in the Use of Controls

The measurement and conceptualisation of this contextual variable remains open to further refinements. This was originally developed from Simons' (1994) observations and later assessed empirically (in the context of budgets only) by Abernethy and Brownell (1999). A number of recent empirical and case studies have also relied on this concept (Marginson, 2002; Bisbe and Otley, 2004; Tuomela, 2005; Naranjo-Gil and Hartmann, 2007; Henri, 2006; Widener, 2007). A key initial feature of this variable has been the fact that managers can be either interactive at one end of the scale or diagnostic at the other extreme, in their intentions towards the use of controls. This was explicitly assessed and used by Abernethy and Brownell (1999), although the reliability statistics were not very promising (1999, p. 196). However, a very different picture has emerged in this study in that the responses for the individual items did not factor properly resulting into two variables i.e. an interactive level of use of controls (high/low) and a diagnostic one (high/low). Upon further investigation, only the first variable was used in this study and found to have relevance in the intervening models. Nevertheless, the issue remains as to the exact nature of these two variables and their impact on control systems and subordinate managers - a challenging issue initially put forward by Van der Stede (2001) and more recently in Tuomela (2005), Henri (2006), Widener, (2007) and Bisbe et al. (2007). Informed by the predictive validity framework, the latter authors stress (2007, p. 810) the need for a sound conceptual specification of research constructs - particularly practice-based constructs - and present the example of the interactive use of controls to illustrate their arguments. In addition, some of the recent studies have taken an interest in the interactions between diagnostic and interactive controls (as initially hypothesised by Simons, 1995; 2000). Indeed, the existence of a dynamic tension arising from the interaction of the two styles could be more relevant in understanding their effects on managers' behaviour and organizational outcomes (Marginson, 2002; Henri, 2006). Finally, as will be elaborated below, future MCS studies may - as a matter of course - be compelled to examine and model the inter-linkages between the different control systems i.e. for example by

relying comprehensively on the levers of control (LOC) framework (e.g. Widener, 2007; Tuomela, 2005).

7.2.3. Traditional vs. ‘Contemporary’ Conceptualisations of Control Systems

The starting point of this discussion relates to the measurement of budgetary participation in this study (Section 6.2.2). Although it was only slightly different from the original Milani (1975) score and it did not seem to have caused significant differences in the overall results, it remains that this once ‘stable’ construct may now be increasingly out of tune with the realities of budgeting and planning practices in private organizations, as alluded earlier in Chenhall (2003) and Shields and Shields (1998). For instance, Chenhall (2003, p. 131) mentions budget controls such as static-flexible budgets, non-financial performance measures, activity-based accounting, competitor-focused accounting, and product development information. This could be initially addressed through case studies of participation in setting targets in different types of organizations to find new dimensions and then conducting a cross-sectional (random sample of companies/managers) validation of the variable. In addition, previous discussion on RAPM (Section 7.1.4) has highlighted issues arising from the different conceptualisations of the use of accounting performance measures and the need perhaps to focus on the more intrinsic features of accounting performance measures. Furthermore, as put forward by Chenhall (2003, p. 130) there are a number of ‘new contemporary’ management and control practices that have not been fully integrated in the extant contingency-based MCS research, namely on aspects such as balanced scorecards, target costing, life cycle costing. Hence, whilst this study has focused on specific and well-researched control systems and has indeed brought new research findings in relation to these control systems, it is also important to recognize there could be other control systems/mechanisms operating within these same organizations that may have more relevance than these ‘traditional’ controls - in terms of their impact on contextual variables and dysfunctional behaviours.

In parallel to the above, there is an increasing acknowledgement (and empirical implementation) of the fact that control systems are inter-dependent (Merchant and Otley, 2006) and that researchers must approach studies with a holistic perspective of control systems (Otley, 1999) rather than considering control systems in isolation from

one another¹²⁹. Recent MCS studies indicate that this latter strategy remains popular, possibly as a need to focus on the implications of specific control mechanisms, and with particular emphasis on more contemporary systems e.g. Bisbe and Otley (2004) study the interactive use of budgets, balance scorecards and project management systems without assuming these may have inter-dependencies. Henri (2006) adopts Simons' (1995: 2000) conceptualisations of interactive/diagnostic control and dynamic tensions between them but focuses their implications only on performance management systems. In contrast, Widener (2007) and Tuomela (2005) adopt the LOC framework (belief systems, boundary systems, diagnostic, interactive) holistically and address the inter-relationships between the control systems. For instance, and relying on Simons' (1995; 2000) arguments, Widener (2007) hypothesises relationships between the emphasis placed on belief systems and the emphasis placed on the other three control systems. Overall, she finds (2007, p. 779) empirical support for the inter-relatedness and complementarities between the different control systems in improving organizational outcomes. Incidentally, this study found little association amongst the surveyed control mechanisms, apart from a significant correlation between SOP and BP (Table 6.9). However, in the absence of an explanatory framework supporting the inter-relationships between control systems, such association (and absence thereof) conveys little theoretical meaning. As Widener (2007) demonstrates, the LOC framework could be a useful theoretical basis to assess empirically the complementarities between control systems. Alternatively, Chenhall (2003, p. 131-132) suggested the use of taxonomies of control systems (from mechanistic to organic controls) and how these relate to the overall control culture of the organization.

7.2.4. Measurement and Consequences of Managerial Dysfunctional Behaviour

This section relates to the two continuous challenges in researching the 'practice' of managerial dysfunctional behaviour and the implications of such practices for managers and organizations. Previous studies of dysfunctional behaviour, such as Jaworski and Young (1992), Van der Stede (2000), Merchant (1985c), refer to the problems of eliciting 'truthful' responses from managers about the extent to which they might 'misbehave'. The use of forced choice questions and other strategies in formulating the various items do not appear to have had a negative impact on construct validity and the

¹²⁹ Incidentally, previous studies (e.g. Dunk, 1990; 1993a; 1993b) have considered the inter-relationships between BP and RAPM but as part of a moderating model i.e. BP and RAPM were hypothesised to be interacting to achieve organizational outcomes but were not assumed to be directly associated.

intended sub-dimensions of DB (information manipulation and gaming) did materialize as originally expected. Nevertheless, the risk of ethical-led bias remains quite present and potentially can influence findings. Future research involving dysfunctional behaviour might best be led by the guidelines on conceptual specification, recently advocated in Bisbe et al. (2007).

Equally crucially however, the other challenge concerns the follow-on - and possibly positive - consequences of managerial dysfunctional behaviour for the organization, which as result, could be encouraged by senior management. The same issue was raised within the budgetary slack literature (e.g. Shields and Shields, 1998; Dunk and Perera, 1997) and on the nature of dysfunctional behaviour itself (Argyris, 1990). As mentioned by Jaworski and Young (1992, p. 31), firms may condone violations of the control system if there are indications that such violations may actually improve performance over the long run. Van der Stede (2000, p. 620) does acknowledge the same point but counter-argues that unless actions are taken to reduce dysfunctional behaviour in the short term, “...*there may never be a long term*”. More recently, Davila and Wouters (2005, p. 588) presented convincing case evidence on how budgetary slack was accepted and used purposefully by the organization as a way to facilitate managers’ work, particularly in situations when the latter are confronted with uncertainties and multiple goals. The authors report on an almost subtle and elaborate system by which the organization was able to direct managerial attention to more important aspects by allowing the building of slack.

Throughout the various studies (including this present one) and over time, the terminologies used (i.e. slack, short-term orientation, information manipulation, gaming and dysfunctional) have inevitably conveyed a negative tone. Davila and Wouters (2005, p. 588) highlight this issue and argue that they for example view slack as a neutral concept with no pre-determined positive/negative connotations. Argyris’ (1990, p. 506) also appears to review his initial perspectives by referring instead to the activation of organizational and individual defensive routines adopted by players (and thereby implicitly accepted by organizations) to ‘protect themselves’. But there is little acknowledgement of how this could be beneficial in the longer term. Whilst recent evidence on the ‘good’ consequences of slack has been uncovered, more investigation may be needed in formally ascertaining the positive consequences of a wider range of

so-called dysfunctional behaviours not only at the individual/managerial level, but also for the organization as a whole.

7.3. Key Recommendations for Further Research

The previous sections on the main contributions to the literature and limitations/opportunities have already highlighted or alluded to a number of directions future MCS research could build on from the key findings of this study. As a result, the following six key recommendations for future research are presented:

(a) Research on the elements, and the overall framework, of Simons' (1995; 2000) levers of control (LOC). There are emerging findings from this study and recent research (e.g. Tuomela, 2005; Henri, 2006) suggesting that an interactive style of controls is not necessarily leading to positive consequences for control systems using the LOC framework. In addition, evidence on the benefits of a so-called dynamic tension between the 'negative' (boundary and diagnostic) and 'positive' (beliefs and interactive) forces has not been forthcoming (e.g. Henri, 2006). At the same time, a more comprehensive adoption of the LOC framework will inherently involve the study of inter-relationships between control systems (e.g. Widener, 2007).

(b) In parallel, there is a need to review more critically the concepts and constructs of 'traditional' MCS research such as budgetary participation and RAPM. In the case of BP, there is an implication that the budgeting and planning process has remained static and that the 'process' of participation has not evolved, as a result of new management structures, use of technologies (e.g. enterprise resource planning systems) and changes in management / organizational ethos. In the case of RAPM, there would be an interest in considering the intrinsic features of accounting-based and budget-measures and the consequences these may have on managers and organizations in the presence of key contextual variables. In a similar vein, the notion of 'uncertainty' - as it pertains to the operation of control systems - may also need to be revisited. Finally, the findings on SOPs suggest that further research on other instances of 'non-financial' boundary systems (or mechanistic controls) - and their inter-relationships between them - is germane to one's understanding of the overall consequences of MCS.

(c) Applicability of results in other contexts: The comparison of MCS and its consequences in different countries has already been an element with abundant literature. It was however argued that the cultural dimensions used (mainly developed by Hofstede, 1981) may not be appropriate to formally assess the differences in practices in such studies and also in the broader context of accounting research. This point was elaborated in Baskerville (2003, p. 10), who suggested the alternative use of national characteristics relating to economic performance, socio-political data etc. In this thesis, the extent of the analysis was limited to one country – albeit in one which has been frequently ‘used’ in previous MCS studies - and difficulties may arise in replicating this research in other contexts, particularly in countries where there may be more reluctance to respond to questionnaires or where there are difficulties in assessing the list of target companies and managers.

(d) A number of aspects recommended in (a), (b) and (c) above could best be addressed through the use of multiple research methods and data sources, rather than relying solely on questionnaire surveys or case study research. One possible research strategy would be to first carry out case study-based research on a few similar companies (similar size and activity) in Australia as well as in other countries, which would allow a more in depth analysis and understanding of control systems as they exist in the field. This can then inform contingency-based designers in developing better measures. For instance, this notion of dynamic tension (e.g. Henri, 2006) appears to be much more complex than being simply understood and measured as a product term of an interactive and diagnostic use of controls. In addition, the use of more recent statistical methods (such as Partial Least Squares) will bring more confidence in the validity of the models and hypothesis put forward, particularly in a research context dogged by relatively low response rates.

(e) Dysfunctional behaviours: measurement and follow-on Consequences – This thesis has provided a fairly robust confirmation of the descriptive (e.g. Birnberg et al., 1983) and empirical literature (specifically Jaworski and Young, 1992) in terms of the construct ‘*extent of managerial dysfunctional behaviour*’ and its sub-dimensions of ‘*information manipulation*’ and ‘*gaming*’. However, replication studies can be envisaged to confirm the stability of the constructs and eventually there would be an interest in surveying a wider sample of managers in manufacturing as well as service companies in different contexts. Furthermore, there is the critical question of the

follow-on (rather than long-term) consequences of dysfunctional behaviours, as mentioned in Jaworski and Young (1992), Van der Stede (2000) and Davila and Wouters (2005). Hence, building on the lessons learned from the budgetary slack literature, there would be merit in investigating - empirically and/or initially as a case study - the consequences of managerial dysfunctional behaviours on other outcome variables, such as managerial motivation, job satisfaction, or performance.

(f) Institutional theory-led and other 'interpretive'-led variables - Part of this study has focused on the empirical implications of the institutional perspective in the operation of management control systems. There is a criticism and limitation in using empirical methods such as a survey questionnaire to measure such aspects. On the other hand, case study research can only bring a limited set, albeit in more depth, of evidence as to the validity of these 'interpretive' variables in organizations. The case study literature has already highlighted the existence/relevance of rationalised practices, legitimacy, symbols and rituals, and the exercise of power and politics in organizations, when it comes to the existence and use of MCS. They are factors and issues that are increasingly difficult to ignore within the 'mainstream' MCS research in assessing the managers' behaviour in response to control systems. As a potential illustration, empirical research on the asserting and exercising of power through accounting/control systems could be considered by building on the findings of existing case studies (e.g. Collier, 2001; Abernethy and Vagnoni, 2004).

7.4. Concluding Remarks

During the research and write up phase of this thesis, a number of developments in the MCS area have occurred. Whilst these have been acknowledged in various parts of this thesis, this chapter has particularly sought to situate the relevance of the current study's measures and findings vis-à-vis these more recent studies. Firstly, this study brings to the fore the concept of dysfunctional behaviour as a broader set of behaviours involving information manipulation and gaming. Relying on early conceptualisations, the relevant statistics in this study support its reliability and validity for future research. Secondly, the effects of control systems on managerial dysfunctional behaviour have been identified and the potential (and different) 'dynamics' underlying such effects have been put forward, particularly in light of the recent findings relating to the LOC framework and the interactive/diagnostic concepts. For instance, SOPs - as a form of

boundary system - have a limited but constraining effect on gaming practices. In contrast, the motivational-led properties of participative budgeting have a broader but yet defusing effect on the extent of both information manipulation and gaming practices, suggestive of the beneficial and comprehensive impact of BP in organizations. On the other hand, the reliance on accounting performance measures enhances both forms of dysfunctional behaviour and this could be associated to the diagnostic feature of the control system, and its expected 'negative' consequences for managers. Thirdly, the relevance of task uncertainty and the interactive use of controls has been partly confirmed but there are also contrary (and non-significant) results which have been related to recently published empirical/case findings. Fourthly, there are a number of significant results - relating to SOPs, BP and RAPM - supporting the claim that the managers' views on the legitimating nature of controls (LNC) intensify the extent of dysfunctional behaviours. In other words, the managers' attitudes on the extent to which controls are more ceremonial, ritualistic and symbolic than functional is observed to have a moderating impact on the relationship between control systems and dysfunctional behaviour. Whilst not all the relevant hypotheses have been supported, the findings are at least indicative of the possible avenues of compatibility between legitimacy/institutional arguments and the rational-led contingency model used in MCS research.

Finally, a number of limitations have been also highlighted such as the (relatively) low response rate, the use of statistical methods, the conceptualisations (and inter-relationships) of control systems and the consequences of dysfunctional behaviours (whether leading to positive or negative outcomes). However, these limitations also represent opportunities for further empirical and/or case studies, in a bid to better appreciate and recognise the complexities that are currently emerging from the study of the existence, interacts, and consequences of management control systems.

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APPENDICES

Appendix 2.1 - List of Contingency Variables Researched in Management Accounting and Control Studies

Contextual Variable	Reference	Measurement / Construct
Advanced Management Practices (AMP)	Perera et al. (1997) Chenhall (1993b) Note: AMP and AMT are combined to form "Customer-Focused Manufacturing Strategy)	Based on Chenhall (1993b) - A seven-item instrument to assess the extent to which an organization has implemented programs involving reduction of waste, quality improvement, cycle time improvement etc.
Advanced Manufacturing Technology (AMT)	Perera et al. (1997) <i>Note: AMP and AMT are combined to form "Customer-Focused Manufacturing Strategy)</i>	Adapted from Inkson et al (1970) - The instrument measures the degree (existence/use) of workflow integration automation as characterised by six categories ranging from hand tools to computer control.
Agreement on Evaluation Criteria	Dunk (1990)	Extent of agreement between the supervisor and subordinate on the evaluation criteria for assessing the subordinate's performance. It is measured by using Hopwood's (1972) 8-item instrument on superior's evaluative style whereby the respondents (subordinate) responds twice to these questions: one on their own personal view of the importance their superiors place on each criteria and second, on their perception of the importance of these criteria. (Dunk, 1990, p. 173, 175).
Attitude	Mia (1988)	Milani (1975) defines attitudes in terms of employees' feelings and predispositions towards their job and employer in a budgetary context. Attitude towards the job is measured using a 16-item instrument and attitude towards company is measured using a 10-item instrument (Mia, 1988, p. 468-469)

Appendix 2.1 (contd)		
Authoritarianism (Authoritarian Dyad is a related concept)	Harrison (1993) Chenhall (1986) Seiler and Bartlett (1982) Searfoss and Monczka (1973)	This is a personality variable and measures the extent to which the superior (or subordinate) believes in personal interactions based on power and authority i.e. where directives and orders are more accepted than cooperation and trust. Authoritarian Dyad relates to the comparison of authoritarianism levels for subordinates and superiors combined (high/low), as applied by Chenhall (1986). Both concepts are measured California F Scale (Adorno et al., 1950)
Corporate Context	Merchant (1981)	Defined in terms of size, product diversity and extent of decentralization.
Culture	Chow et al. (1991) Harrison (1992) Harrison (1993) Chow et al. (1999)	National Culture (Individualism) National Culture (Power Distance and Individualism) National Culture National Culture (Individualism, Power Distance, Uncertainty Avoidance and Masculinity)
Decentralization (Organizational Structure)	Gul and Chia (1994) Chia (1995) Govindarajan (1988) Merchant (1981) Gul et al. (1995)	Using the measure of Organizational Structure (Gordon & Narayanan, 1984) to classify the degree of decentralisation in decision making in terms of the development of new products/services, the hiring and firing of managerial personnel, selection of large investments, budget allocations and pricing decisions (Gul and Chia, 1994, p. 419)
Environment	Waterhouse and Tiessen (1978)	Environment has two aspects: Simple vs. Complex and Static vs. Dynamic, which load into one dimension: Predictability
Environmental Uncertainty	Merchant (1990) Brownell (1985) Brownell (1987)	Developed by Lorsch & Allen (1973) and also used by Sathe (1982) – Environmental Uncertainty is assessed using an environmental rate of change in six categories of the profit centre's environment (Merchant, 1990, p. 304)

Appendix 2.1 (contd)		
Environmental Volatility	Kren (1992a)	<p>Volatility is defined as change or variability in the organization's external environment. The measures were operationalised by Tosi et al. (1973) and confirmed by Snyder & Glueck (1982). The basis of computations were:</p> <ul style="list-style-type: none"> • Accounting variables for measuring market (coefficient of variation of net sales) • Technological (coefficient of variation of the sum of research & development and capital expenditure divided by total assets) and • Income volatility (coefficient of variation of profits before taxes)
Functional Differentiation	<p>Mia and Chenhall (1994)</p> <p>Brownell (1985)</p> <p>Merchant (1984)</p> <p>Hirst and Yetton (1984)</p>	<p>Classifying production and marketing functions as high and medium/low task uncertainty based on interviews of selected companies i.e. linking level of task uncertainty to functional areas.</p> <p>Functional Area (Marketing vs. R&D managers)</p> <p>Functional Differentiation (Allocation of responsibilities within the manufacturing departments)</p> <p>Production vs. Non-Production Jobs (low vs. high job structure)</p>
Goal Congruence	Jaworski and Young (1992)	Refers to the degree of adoption of values, goals and objectives of the organization as one's own goals. The scale comprises of two items (Jaworski and Young, 1992, p. 26)
Information Asymmetry	<p>Dunk (1993a)</p> <p>Dunk (1995)</p>	The extent to which subordinates have more information on their activities than what is known by their superiors. Dunk (1993a) developed a six-item (seven point scale) to measure the extent of information asymmetry.
Intensity of Market Competition	<p>Khandwalla (1972)</p> <p>Mia and Clarke (1999)</p>	Description of the term 'intensity of market competition' and managers were then asked to rate the level of intensity of competition in their organization's market.

Appendix 2.1 (contd)		
Interactive vs. Diagnostic Supervision Style	Abernethy and Brownell (1999)	Based on Simons' (1990) classification on the use of controls by managers. Using a four-item (seven point scale) instrument, an evaluation was made of the manager's extent of interaction vs. extent of diagnostic behaviour towards a specific control system (the budget).
Interdependence (Sub Unit)	Hayes (1977) Macintosh and Daft (1987) Williams et al. (1990) Fisher (1994) Bouwens and Abernethy (2000)	The measures were based on those of Van de Ven et al (1976). The questions aimed at identifying the type of interdependence: Pooled, Sequential & Reciprocal Interdependence between sub-units (departments). Workflow Diagrams were used to illustrate the different types of interdependence. Williams et al. (1990) used the term "Task Interdependence".
Job Relevant Information	Kren (1992a)	Job Relevant Information (JRI) helps the manager to improve his/her action choice through better-informed effort, thus providing the manager with a better understanding of decision alternatives and actions to reach objectives (Kren, 1992a, p. 512). This measure assesses the extent to which managers perceive information availability for effective job-related decisions (1992, p. 514).
Leadership Style - Supervisory Consideration	Hopwood (1974) Brownell (1983b) Merchant (1985b) Merchant (1990) Otley and Pierce (1995)	Extent of consideration and support that the superior has for the subordinates. It is one dimension of leadership style. Consideration is measured by the subordinates' perceptions, using the Leadership Behaviour Description Questionnaire (LBDQ, Stogdill, 1963)
Leadership Style - Initiating Structure	Hopwood (1974) Brownell (1983b) Merchant (1985b) Otley and Pierce (1995)	The extent to which an individual is likely to define and structure his/her own role and those of his subordinates towards goal attainment. (Otley and Pierce, 1995, p. 406)

Appendix 2.1 (contd)		
Locus of Control	Brownell (1981) Brownell (1982b) Mia (1987) Frucot and Shearon (1991) Kren (1992b) Fisher (1996)	A personality variable that lies on a continuum with two extremes: (i) Internals – Individuals who believe that the events that occur in their lives are largely due to their own actions or efforts. (ii) Externals – Individuals who believe that their destinies are controlled by luck or chance. (Fisher, 1996, p. 362)
Managerial Level	Dunk (1992)	Managerial Level refers to the position an individual holds in a hierarchy of managerial authority. Respondents were provided with a generic organisation chart and asked to indicate their managerial level in the organisation (operationalised from Level 1 to Level 4) (Dunk, 1992, p. 209, 212).
Managerial Role	Macintosh and Williams (1992)	According to Mintzberg (1973), managers exhibit different behaviours in relation to the duties involved in management. These behaviours can be classified in managerial roles, namely interpersonal, informational and decisional roles. Aspects that were specifically studied within these roles were leader, liaison, monitor, spokesman, entrepreneur and resource allocator. The instrument was based on Tsui's (1984) instrument.
Manufacturing Flexibility (also referred to as Customisation)	Abernethy and Lillis (1995). Bouwens and Abernethy (2000)	Abernethy and Lillis (1995) developed two questions based on interviews to measure manufacturing flexibility: <ul style="list-style-type: none"> • What proportion of your turnover comes from non-standard product lines? • Does the manufacturing process provide the flexibility to offer customers product variations? Adapted Measure from Pugh et al. (1969) - Percentage of products/services in four categories of customisation

Appendix 2.1 (contd)		
Manufacturing Practices (TQM & JIT)	Sim and Killough (1998)	Adapted from Snell and Dean (1992): <ul style="list-style-type: none"> • TQM Instrument: 10 item instrument largely adapted from Snell and Dean (1992) to measure the extent of use of specific procedures/actions in an organization. • JIT Instrument: 10-item instrument
Manufacturing Process Automation	Brownell and Merchant (1990) Dunk (1992)	A three-part instrument developed by Inkson et al. (1970): <ul style="list-style-type: none"> • Degree of automation of the most automatic piece of production equipment (six point) • Degree of automation of the bulk of the production equipment (six point) • Degree of automation of finished product quality (3 point)
Market Factors	Merchant (1984)	Two aspects of market factors: <ul style="list-style-type: none"> • Stage of the Product Life Cycle (emerging, growth, mature, declining) • Strength of Market Position
Motivation	Mia (1988)	Work motivation was measured using an instrument developed by Lawler and Suttle (1973) and based on expectancy paradigm (Mia, 1988, p. 469)
Organisation Structure	Bruns and Waterhouse (1975) Gordon and Narayanan (1984) Davila (2000)	Based on Burns & Stalker's (1961) notion of mechanistic vs organic. Construct was measured by 5 questions about degree of centralization, formalization of authority, and the degree to which general characteristics of bureaucracy existed in the organization (some adapted from Khandwalla, 1972) Within the context of a R&D function, what are the responsibilities and position of the manager and his/her authority over marketing decisions?

Appendix 2.1 (contd)		
Organisational Characteristics	Merchant (1984)	Two Measures were used: <ul style="list-style-type: none"> • Departmental Size (No. of Full Time Employees) • Degree of Functional Differentiation (adapted from Inkson et al, 1970 measures of specialization and decentralization)
Organisational Commitment	Nouri and Parker (1998) Nouri and Parker (1996) Nouri (1994)	Organisational Commitment is a bond that links the individual to the organisation (Mathieu and Zajac, 1990) - Measured using a nine-item scale from Mowday et al (1979)
Organisational Size	Merchant (1981) Merchant (1984)	<i>Refer to 'Organisational Characteristics'</i>
Perceived Peer Dysfunctional Behaviour	Jaworski and Young (1992)	Defined as the individual's perceptions that his peers knowingly violate established control system rules and procedures. It is measured using a 3-item instrument (Jaworski and Young, 1992, p. 26)
Perceived Environmental Uncertainty	Gordon and Narayanan (1984) Chenhall and Morris (1993) Govindarajan (1984) Gul (1991)	Gordon and Narayanan (1984) adapted the questions from Khandwalla (1972): 7 questions relating to intensity of bidding for raw materials, competition for manpower and price competition, no. of products marketed, stability of economic/technological environment, predictability of competitors' action, predictability of preferences/tastes of customers, changes to legal/political/economic constraints, and frequency of new scientific discoveries in the industry. Govindarajan (1984) adapted the questions from Miles and Snow (1978) – How predictable were the following five components of the organisation's external environment: customers, competitors, regulatory groups and technological requirements of the industry.

Appendix 2.1 (contd) Environmental Uncertainty (contd)	Govindarajan (1986) Kren and Kerr (1993), Ross (1995) Gul and Chia (1994) Chenhall and Morris (1986) Ferris (1982) Rebele and Michaels (1990) Umanath et al. (1993)	Adapted from instrument developed by Duncan (1972) and Sathe (1974). The measurement construct comprises the following items: manufacturing technology, competitors' actions, market demands, product attributes/designs, raw materials availability, raw materials prices, government regulation and labour union actions (Gul and Chia, 1994, p. 418). (12 items-instrument)
Personality	Harrison (1993)	The personality variable was measured using the following sub-dimensions: <ul style="list-style-type: none"> • Authoritarianism: based on a ten-item instrument (California F Scale) • Individualism–Collectivism: based on a 11-item co-worker subscale of the INDOL scale (Hui, 1988)
Product Life Cycle	Merchant (1984)	The stage in the product life cycle is considered as one important dimension of “market factors” and the discrete stages were: emerging, growth, mature, and declining. (Merchant, 1984, p. 295)
Product Standardization	Brownell and Merchant (1990) Merchant (1984)	A Product Dimension varying from “one of a kind” to “commodities” (high): Converted to –1 and +1 for low and high standardization respectively.
Production Technology	Woodward (1965) Merchant (1984)	Different Types of Production Technique (unit production, small batch, large batch, mass production and process production) Focus on Routine/Non Routine Aspect: <ul style="list-style-type: none"> • Degree of Automation of the Production Process (Inkson et al, 1970) • Degree of Product Standardization (adapted from Thompson, 1967)
Project Uncertainty	Davila (2000)	Uncertainty relating to technology and market factors for R&D functions

Appendix 2.1 (contd)		
Standard Tightness	Shields et al. (2000)	Standard tightness is defined as the amount of resources needed to perform at the level of a standard minus the amount of resources provided to perform
Strategic Priorities	Chenhall and Langfield-Smith (1998)	Using Porter's (1980) Framework <ul style="list-style-type: none"> • Low Price (Cost) vs. Differentiation
Strategy	Govindarajan and Gupta (1985) Simons (1987a) Govindarajan (1988) Govindarajan and Fisher (1990) Merchant (1990) Merchant (1985b) Gupta (1987) Davila (2000)	Build, Hold, and Harvest Strategies (Business Unit Strategy) Prospectors and Defenders Differentiation and Low Cost Strategies Differentiation and Low Cost Strategies Harvest, maintain/generate cash flow, selective growth and rapid growth (using the firm's own terminology) Harvest, maintain/generate cash flow, selective growth and rapid growth (using the firm's own terminology – Profit Centres) Build, Hold and Harvest Strategies Product Strategy (Low Cost, Time Based and Customer Focused)
Task Difficulty (Also Job Difficulty)	Lau et al. (1995) Mia (1987) Brownell and Dunk (1991) Mia (1989)	Sub-dimension of Task Uncertainty, which focuses on analysability Seven-item instrument based on Van de Ven and Delbecq (1974). Mia (1989) used the term "Job Difficulty" but applied the same instrument as task difficulty.
Task Interdependency	Imoisili (1989)	Task interdependency is defined as the extent to which each participant perceives his or her work-related activities to require the joint or cooperative efforts of other work groups within than particular organisation. It is measured using a 2-item, 5 point, scale from Osborne et al. (1980).

Appendix 2.1 (contd)		
Task Uncertainty	<p>Chong (1996) Brownell and Hirst (1986) Lau et al. (1995)</p> <p>Imoisili (1989) Gresov (1989)</p> <p>Brownell and Dunk (1991) Hirst (1983)</p>	<p>Defined as the difference between the amount of information required to perform a task and the amount of information already processed (Galbraith, p. 4, 1973). Measured as a nine item, 7-point scale, based on the instrument of Withey et al. (1983).</p> <p>Defined as the frequency of change of factors affecting work-unit performance (Imoisili, 1989). A five-item, 5-point scale, instrument from Podsakoff et al. (1983) was used to measure this variable.</p> <p>14-item, 7-point scale, composite measure used by Van de Ven and Delbecq (1974) and made up of two sub-measures, namely Task Difficulty and Task Variability.</p>
Technology	<p>Daft and Macintosh (1978)</p> <p>Waterhouse and Tiessen (1978) Brownell and Merchant (1987)</p>	<p>Measuring work unit technology (i.e. number of exceptions that arise in conversion process and search procedures used when exceptions arise) – based on Perrow (1967)</p> <p>Same as Perrow (1967) but loads into one single dimension: degree of routineness.</p>
Trust	<p>Ross (1994) Otley (1978) Hopwood (1972)</p>	<p>A manager's level of trust for his superior was measured by a four-item instrument, developed by Read (1962).</p>

Appendix 2.2 - Definitions and Scope of Management Accounting and Control Systems

No.	Study	Term	Definitions or <u>Statements Implicitly</u> providing Definitions and Scope.	Context or Objective of Study
1	Hopwood (1972)	Accounting Systems	“Accounting Systems are often the most important <u>formal sources</u> of information in industrial organizations. They are designed to provide all levels of management with timely and reasonably accurate information to help them make decisions which are in agreement with their organization’s goals” (1972, p. 156)	<ul style="list-style-type: none"> • Role of accounting data in performance evaluation (Specifically the Budget) • Dysfunctional Behaviours as a result of Budget Constrained vs. a Profit Conscious Style of Performance Evaluation
2	Gordon and Miller (1976)	Accounting Information Systems (AIS)	Characteristics of Accounting Information Systems <ul style="list-style-type: none"> • Information Load • Centralization of Reporting • Cost Allocation Methods (amount and timing) • Frequency of Reporting • Method of Reporting (statements, raw data, charts) • Time Element (Ex Ante or Ex Post) • Performance Evaluation • Measurement of Events (financial vs. non-financial, external vs. internal data. • Valuation Methods (historical cost, market value, inflation adjusted). (1976, p. 570). 	<ul style="list-style-type: none"> • Devising a Contingency Framework for the Design of Accounting Information Systems. • Linking ‘archetypes’ of firms to the AIS design compatible to each type of firm: Adaptive, running blind, and stagnant bureaucracy.

Appendix 2.2 (contd)				
3	Hopwood (1977)	Information & Control Systems	<p>“Many Management Information and Control Systems, and particularly <u>responsibility accounting systems</u>,...” (1977, p. 197).</p>	<ul style="list-style-type: none"> • How to Design Information Systems for Matrix Organizations. • Provides a classification of information systems based on two dimensions: (1) Project vs. Functional Orientation and (2) Decision vs. Control Orientation)
4	Hopwood (1978)	Accounting and Information Systems	<p>“...the role that <u>formal information systems, such as accounting systems</u>, ...” (1978, p. 4)</p> <p>“...the design of and functioning of <u>accounting systems</u>, like <u>other information and control systems</u>, are interrelated...” (1978, p. 8)</p>	<ul style="list-style-type: none"> • Justification for further research into the design of accounting and information systems. • “...We still have only the barest of understanding of the factors which shape either the design of information systems or the processes through which they, in turn, influence the consciousness and actions of organizational participants”. (1978, p. 10)
5	Otley (1980)	Management Accounting System (MAS)	<p>“..is thus viewed as <u>one type of control mechanism</u> and will be dependent upon the control needs of an organizational sub-unit..” (1980, p. 91)</p> <p>“It is explicitly recognized that AIS design, MIS design, organizational design and the <u>other control arrangements of the organization</u> (such as collective agreements, personnel selection, promotion and reward systems....form a package which can <u>only be evaluated as a whole.</u>” (1980, p. 96).</p>	<ul style="list-style-type: none"> • Formulating the minimum necessary contingency framework. • Cites examples of more formalized controls in organization, from Westerlund & Sjostrand (1979). (list annexed, p. 98)

Appendix 2.2 (contd)				
6	Tiessen and Waterhouse (1983)	Management Accounting System	<p>“MAS serves an important constitutional role within organizations...to <u>encourage cooperative behaviour</u> on the part of organizational members” (1983, p. 252)</p> <p>“In other organizational settings, MAS information may be important for reaching and <u>enforcing agreements</u> among organizational members”. (1983, p. 252).</p>	<ul style="list-style-type: none"> • A review of contingency and agency theories in the field of management accounting systems • Proposing various institutional arguments to explain the persistence in the practice of certain responsibility accounting systems
7	Gordon and Narayanan (1984)	Management Accounting Systems	<p>“The MAS oriented researchers have been primarily concerned with an <u>organization’s information system</u>”</p> <p>“.....information systems are seen as <u>facilitating decision making</u> within organizations” (1984, p. 33)</p>	<ul style="list-style-type: none"> • Investigates the relationship among environment, structure and information systems. However, specific characteristics of the information systems were selected namely: <ul style="list-style-type: none"> (a) Externally Oriented vs. Internal Oriented (b) Non Financial vs. Financial (c) Ex ante (forecasts) vs. Ex Post (historical)
8	Merchant (1984)	Budgeting	<p>“.. the primary <u>financially oriented</u> organizational control mechanism” (1984, p. 291)”</p> <p>“Budgeting is approached at a broad system level..” (1984, p. 291)</p>	<ul style="list-style-type: none"> • Investigate the relationships the budgeting System and three contextual variables, and explores how organizational performance is affected by different uses of budgeting in different settings (via simple correlations).

Appendix 2.2 (contd)				
9	Macintosh and Daft (1987)	Management Accounting Systems Management Control Systems (MCS)	<p>“The role of <u>management accounting systems in organizational control</u> traditionally has been studied in isolation from characteristics of the total organization and from other non-accounting based control systems” (1987, p. 50)</p> <p>“..the <u>package of formal controls</u> in an organization typically includes accounting reports, the budget, formal hierarchy and supervision, job descriptions; rules and standard operating procedures; statistics for measuring performance, organization structure; employee performance appraisal systems and corporate culture.” (1987, p. 50)</p>	<p>Investigate the relationship between the organizational characteristic of departmental interdependence and the design and use of three elements of MCS, namely:</p> <ul style="list-style-type: none"> • Operating Budget • Statistical Reports (Periodic Operational Reports) • Standard Operating Procedures and Policies (How Managers should handle operational situations that might arise)
10	Amat et al. (1994)	Management Accounting Systems	<p>“...to professionalise Spanish organizations and introduce <u>formal control mechanisms</u> such as MAS” (1994, p. 109)</p>	<ul style="list-style-type: none"> • Case Study of the design and implementation of MAS in a Spanish organization. • Study attempts to analyse MAS changes from a two-fold social and organizational perspective.

Appendix 2.2 (contd)				
11	Mia and Chenhall (1994)	Management Accounting Systems	<p>“Conventionally, the design of management accounting system has been confined to <u>financial information internal to the organization with an historic orientation</u>” (1994, p. 1)</p> <p>“However, the increased role of MAS to assist managers ...has resulted in the evolution of MAS to <u>incorporate external and non-financial data</u>”. (1994, p. 1)</p>	<ul style="list-style-type: none"> • Organizations functionally differentiate their activities to limit the effects of uncertainty. • Using measures of task uncertainty to identify the extent of routine and exception in the Production and Marketing Departments • Hence, the relationship of Use of MAS Information (Broad Scope Only) and Effectiveness is moderated by functional differentiation.
12	Chia (1995)	Management Accounting Systems	<p>“In particular, MAS, <u>which is considered as a subsystem</u> within the control systems of the organization..” (1995, p 811)</p> <p>“The MAS is an <u>organizational control mechanism</u> which facilitates control by reporting and creating visibility in the action and performance of its members” (1995, p. 812)</p>	<ul style="list-style-type: none"> • This study examines the effects of a combination of control subsystems (MAS Information Characteristics and Decentralization) on managerial performance. • The study uses all the four Chenhall & Morris (1986) MAS characteristics (as perceived by users) and Decentralization on managerial performance (Using Hierarchical Regression Analysis)

Appendix 2.2 (contd)				
13	Abernethy and Lillis (1995)	Management Control System	This paper focuses on “ <u>..two critical aspects of a firm’s management control system (MCS) : The Performance Measurement System, and the structural arrangements required to coordinate production activities</u> ” (1995, p. 241)	<ul style="list-style-type: none"> • This study examines the impact of manufacturing flexibility on the design of MCS. • Manufacturing flexibility is reflected in a firm’s ability to respond to market demands by switching from one product to another through co-ordinated policies and actions and a willingness to offer product variations. (Nemetz & Fry, 1988; Buffa, 1980; Bowen et al. 1989)
14	Fisher (1995)	Management Control Systems	‘Management control is defined as the <u>control managers exercise over other managers</u> . It is the process by which corporate-level management ensure that midlevel managers carry out organizational objectives and strategies (cited from Merchant, 1989).	<ul style="list-style-type: none"> • Review of Contingency Based Research on Management Control Systems. • Focuses on cybernetic (formal) control systems
15.	Simons (1995)	Management Control Systems	“...are the <u>formal, information-based</u> routines and procedures managers use to maintain or alter patterns in organizational activities” (1995, p. 5)	<ul style="list-style-type: none"> • Simons (1995) identifies four basic levers of control, namely belief systems, boundary systems, diagnostic control systems and interactive control systems

Appendix 2.2 (contd)				
16	Fisher (1996)	Management Information Systems	“.. to facilitate more <u>efficient use</u> of expensive management information resources...”	<ul style="list-style-type: none"> • Argues that personality of the user of information interacts the relationship between PEU and Perceived Usefulness of Information (Timeliness and Scope) i.e. people do not respond in a similar way to a perceived level of uncertainty. • Personality is measured by LOC (Locus of Control)
17	Chong (1996)	Management Accounting Systems	Typical definition: <u>characteristics of MAS design</u> (scope, aggregation, integration, timeliness)	<ul style="list-style-type: none"> • Examines the interactive effects of MAS design and task uncertainty on managerial performance. • Only extent of Broad Scope MAS information was used in the study.
18	Chow et al. (1996)	Management Control System	“A Control System can be defined to include <u>all devices that help ensure the proper behaviour of people in an organization.</u> ” (1996, p. 176)	<ul style="list-style-type: none"> • Cross Country (US vs. Japan) Comparison using Cultural Dimensions to relate the effects of using organizational controls on data manipulation/mgt myopia. • The measure was control system tightness based on various categories of controls (headcount, financial procedural, and directives)

Appendix 2.2 (contd)				
19	Langfield-Smith (1997)	Management Control Systems	<p>“..encompassing the <u>largely accounting-based controls of planning, monitoring of activities, measuring performance and integrative mechanisms..</u>” (1997, p. 208)</p> <p>“This traditional definition may not be sufficiently broad to capture more modern approaches to effective control..” (1997, p. 209).</p>	<ul style="list-style-type: none"> • Reviews studies that have examined the relationship between MCS and Business Strategy.
20	Sim and Killough (1998)	Management Accounting Systems	<p>‘Given the importance of workers’ role in TQM and JIT practices, <u>Management Accounting Systems are often used as mechanisms to motivate and influence workers’ behaviour....</u> As such, the MAS that we focus on are those that are directly linked to control issues on the manufacturing shopfloor” (1998, p. 326)</p>	<ul style="list-style-type: none"> • Study of interactive influence of manufacturing practices (TQM & JIT) and management accounting on systems on performance (Customer & Quality-based), using two-way interactions. • Paper focuses in three components of MAS (a) Performance Measures (including Frequency of Reporting) (b) Performance Goals (were they provided to managers?) (c) Workers’ Performance Contingent Rewards (fixed pay or different types of non fixed pay)

Appendix 2.2 (contd)				
21	Anthony and Govindarajan (1998)	Management Control Systems	<p>“<u>The system used by management to control the activities of an organization</u> is called its management control system. Management Control is the process by which managers influence other members of the organization to implement the organization’s strategies”. (1998, p. 17)</p>	<ul style="list-style-type: none"> • Textbook definition which excludes informal controls:“.. we focus primarily on the systematic , i.e. formal, aspects of the management control function.” • Authors clearly link Strategy Formulation (Goals, Strategies, Policies) to Management Control (implementation of Strategies), which in turn is linked to Task Control (efficient and effective performance of individual tasks) – (1998, Exhibit 1.2, p. 7)
22	Mia and Clarke (1999)	Management Accounting Systems	<p>“For purposes of this study, the MAS is viewed as a system which provides <u>benchmarking and monitoring information in addition to the internal and historical information traditionally generated by MAS.</u>” (1999, p. 138)</p> <p>The above is “..<u>not to deny</u> that a MAS in an organization can also provide information relating to measurement, control, evaluation and reporting of costs, activities and performance”. (1999, p. 138).</p>	<ul style="list-style-type: none"> • Relationship between intensity of market competition and business unit performance, using MAS information Use as a mediator (indirect effect of market competition on performance via MAS information use) • Instrument for MAS Use was developed by the authors (3 item instrument) and is provided in annex. Instrument captures extent of use of benchmarking and monitoring information (external and internal).

Appendix 2.2 (contd)				
23	Mauldin and Ruchala (1999)	Accounting Information Systems	“AIS encompass systems that are either used by accountants, by other decision makers employing accounting information, or in tasks that involve the <u>application of accounting data</u> ”. (1999, p. 319)	<ul style="list-style-type: none"> • To articulate a model for accounting information systems by building on existing theoretical perspectives (technological, organizational and cognitive) • Enhances the dimension of information technology (Systems Design) in AIS
24	Shields et al. (2000)	Control Systems	“Control systems as researched in the accounting literature are usually based on a <u>cybernetic model</u> in which performance standards (e.g. budget, goal, target) and performance measures are compared as the basis for <u>corrective action and performance evaluation</u> ”	<ul style="list-style-type: none"> • Investigating direct and indirect (via job related stress) relationships between 3 performance-based control systems and job performance. The three control components are participative standard setting, standard-based initiatives and standard tightness.
25	Davila (2000)	Management Control Systems	“The study also goes beyond the <u>narrow definition of management control systems</u> around <u>financial information</u> to add formal but non-financial information”. (2000, p. 384)	<ul style="list-style-type: none"> • Investigates the design of Management Control Systems as a dependent variable (function) of the following: product strategy, product uncertainty and organisation structure.
26	Chenhall (2003)	Management Control Systems	“MCS is a <u>broader term that encompasses MAS and also includes other controls such as personal or clan controls</u>Conventionally, MCS are perceived as <u>passive tools</u> providing information to assist managers” (2003, p. 129)	<ul style="list-style-type: none"> • Critically reviews the contingency-based MCS studies over the past 20 years. • Derives a taxonomy of MCS (organic vs. mechanistic) • Proposes the integration of ‘alternate’ theories in contingency studies.

Appendix 2.3 – Classification of Management Control Systems: Systems, Sub-Systems and Mechanisms

Control System	Dimensions/Mechanisms	General Control Attributes Being Tested (Assumed or Specified)	Reference
Control Systems (Generic Attributes Sought)	<p>1. Tailored to departmental specificities Cost Control: Extent of use cost analysis techniques & controls Goals related to output effectiveness</p> <p>2. Monitoring Capabilities of Control Systems: Specific Action Controls Results-of-Decisions Controls Personnel Controls</p> <p>3. Management Control Sub-Systems Strategic Planning Review Financial Goals Budget Preparation and Review Budget Revisions and Updates Program Reviews Evaluation and Reward</p> <p>4. Levers of Control Belief Systems (four items on mission statement and values) Boundary Systems (four items on code of conduct) Diagnostic Control System (11 items describing the use of performance measures, from a diagnostic perspective) Interactive Control System (6 items describing the use of control system from an interactive perspective)</p>	<p>Individual vs. Group Low vs. High Behaviour vs. Outcome</p> <p>Low/High Low/High Low/High</p> <p>Not Applicable</p> <p>Low/High Low/High Low/High Low/High</p>	<p>Simons (1987a)</p> <p>Kren and Kerr (1993), based on Merchant (1982)</p> <p>Simons (1990) – Case Study Research</p> <p>Simons (1995) Widener (2007)</p>

Appendix 2.3 (continued) Control Sub-Systems and Control Mechanisms:			
Structuring of Activities	4. Extent to which authority has been delegated for major types of decisions (e.g. acquisition of capital equipment and other inputs, hiring of staff). i.e. Extent of Decentralisation. (Chow et al. 1999, p. 458)	Loose vs. Tight	Chow et al. (1999) Govindarajan (1988)
Standard Operating Procedures	5. Extent of procedures and manuals to be applied in managerial activities (e.g. acquisition of capital equipment and other inputs, hiring of staff) 6. SOP Characteristics: Number of Books Number of Pages Percentage of Departmental Work Covered Percentage of Time Necessary to follow SOP Adherence to SOPs used to evaluate performance Influence of SOPs on department activities and operations	Low vs. High Low vs. High Low vs. High Low vs. High Yes/No Low vs. High	Chow et al. (1999) Macintosh and Daft (1987)
Budgeting Process	7. Extent of Subordinate Participation in Budget/Target Setting (Low/High)	Tight vs. Loose	Chow et al. (1999) Nouri and Parker (1998) Brownell and Merchant (1990) Dunk (1992) Brownell and Dunk (1991) Dunk (1990) Mia (1988) Shields et al. (2000) Brownell (1985) Govindarajan (1986) Kren (1992a)

Appendix 2.3 (contd) Budgeting Process (contd)	8. Standard Tightness (Low/High) Achievability	Loose vs. Tight	Chow et al. (1999) Simons (1987a) Shields et al. (2000)
	9. Operating Budget Characteristics (Subordinate's View): Frequency Target Difficulty Influence in Target Setting Importance in Planning, Coordination and Monitoring/Measuring Emphasis on Meeting Targets Response to Negative Variances Influence on Daily Activities	Frequent vs. Infrequent Low vs. High Low vs. High Low vs. High Low vs. High Extent of Explanations further to variances Low vs. High	Macintosh and Daft (1987)
	10. Statistical Reports - Described as operational reports, displaying non-monetary outputs and performance measures. Operationalised in terms of the same characteristics and attributes of the operating budget, mentioned above (i.e. representing the non-financial dimension of the "target setting" process).	Same as Operating Budget Characteristics	Macintosh and Daft (1987)
11. Budget-Related Behaviour Items (extent of the following) Required Explanations of Variances Subordinate's Influence on Budget Plans Interactions with Subordinates Reactions to Expected Budget Overruns Interactions with Superiors Personal Involvement in Budgeting	Low vs. High Low vs. High Low vs. High Low vs. High Low vs. High Low vs. High	Merchant (1984) Merchant (1985c) Macintosh and Williams (1992) Williams et al. (1990)	

Appendix 2.3 (contd) Performance Evaluation	<p>12. Extent of Subordinate Participation in Performance Evaluation (Low/High)</p> <p>13. Extent to which controllability filters are used in performance evaluation (Low/High)</p> <p>14. Reliance on Accounting Performance Measure for Performance Evaluation (Budget Emphasis)</p>	<p>Tight vs. Loose</p> <p>Mechanistic vs. Organic.</p> <p>Accounting vs. Non-Accounting Evaluative Style</p>	<p>Chow et al. (1999)</p> <p>Chow et al. (1999) Simons (1987a)</p> <p>Harrison (1993) Hirst (1983) Brownell and Hirst (1986) Brownell and Dunk (1991) Dunk (1992) Imoisili (1989) Govindarajan (1988)</p>
Compensation Schemes	<p>15. Extent to which financial rewards depend on budget/target performance (Low/High)</p> <p>16. Determination Criteria for Bonus Payment</p>	<p>Short Term vs. Long Term</p> <p>Objective vs. Subjective</p>	<p>Shields et al. (2000) Chow et al. (1999) Walker and Johnson (1999) Simons (1987a) Govindarajan and Gupta (1985) Fisher (1994)</p> <p>Govindarajan (1984) Govindarajan and Gupta (1985) Fisher and Govindarajan (1993) Kren and Kerr (1993)</p>

Appendix 2.4 - Summary of Otley and Pollanen's (2000) Replications

Study	Null hypothesis being tested	Original results	Otley and Pollanen's results
Brownell (1982a)	No interaction between supervisory style and budgetary participation affecting performance or job satisfaction	Job satisfaction - No significant interaction Managerial Performance – significant positive interaction	Job satisfaction – negative and (almost at 5%) significant interaction Managerial performance – non significant and negative interaction
Brownell and Hirst (1986)	No interaction between budget emphasis, budgetary participation and task uncertainty affecting JRT or performance	JRT – three-way interaction was significant and negative.	JRT – three-way interaction was not significant and positive.
Dunk (1989)	No interaction between budget emphasis, budgetary participation affecting performance	Significant and negative interaction term	Not significant and negative interaction term
Brownell and Dunk (1991)	No interaction between budget emphasis, budgetary participation and task uncertainty affecting performance	Significant and negative interaction term <u>Note:</u> Two-way interaction participation x budget emphasis significant only in low task uncertainty	Three-way interaction - same as original results Two-way interaction not significant
Harrison (1992)	No interaction between budget emphasis and participation affecting job satisfaction and job-related tension.	Not applicable – original study focused on cultural differences	Significant two-way and negative interaction between budget emphasis and task uncertainty

Appendix 2.5 – Previous Dysfunctional Behaviour Measures

<p>Manipulation of Performance Measures (Merchant, 1990 and Chow et al, 1996)</p> <p>How frequently you (or someone within your organization) took the following actions in order to comply with controls? (from 1=never to 4=frequently):</p> <p>(1) Pulled profits from future periods into the current period by (a) deferring a needed expenditure (b) accelerating a sale</p> <p>(2) Shifted funds between accounts to avoid budget overruns</p> <p>(3) Bought equipment from outside the company so that the design portion of the expenditure could be capitalised, even though the job could have been done as well within the company.</p>	<p style="text-align: center;"><u>Cronbach</u> <u>Alpha</u></p> <p style="text-align: center;">Not Available (Merchant,1990)</p> <p style="text-align: center;"><i>Range 0.57 to 0.86</i> <i>(Chow et al, 1996)</i></p>
<p>Short Term Orientation (Merchant, 1990 and Chow et al, 1996)</p> <p>1. What percentage of time do you devote to working on matters which will show up in the profit & loss statement within 1 month or less, 1 month to one quarter, 1 quarter to 1 year, and 1 year to 5 years?*</p> <p>2. What are the effects of controls on new ideas for expenditures of the following types (1=great encouragement to 5=great discouragement): new product development, product engineering, manufacturing process engineering, basic research, capacity expansion, advertising and sales promotion, employee development, information systems.</p>	<p style="text-align: center;">Not applicable</p> <p style="text-align: center;">0.69 (Merchant, 1990)</p> <p style="text-align: center;"><i>Range 0.57 to 0.86</i> <i>(Chow et al, 1996)</i></p>
<p>Dysfunctional Behaviours (Jaworski and Young, 1992)</p> <p>Scale the following statements on a 5-point scale (1=Never to 5=Always)</p> <p>1. I tend to ignore certain job-related activities simply because they are not monitored by the division.</p> <p>2. I have adjusted marketing data to make my performance more in line with division goals.</p> <p>3. When presenting data to upper management, I try to emphasize data which reflect favourably upon me.</p> <p>4. When presenting data to upper management, I try to avoid being the bearer of bad news.</p> <p>5. Even if my productivity is inconsistent, I still try to make it consistent.</p>	<p style="text-align: center;">0.75</p>

* Originally developed by Lawrence and Lorsch (1967). Also, Van de Stede (2000) used only this question to measure short-term orientation, and the first three time periods (i.e. up to '1 quarter to 1 year') are summed to indicate extent of managerial short-term orientation.

Appendix 2.5 (continued)

<p>Slack Attitudes (Onsi, 1973) 5 point Likert scale (Never to Always)</p> <ol style="list-style-type: none"> 1. To protect himself, a manager submits a budget that can safely be attained 2. The plant manager sets two levels of standards: one between himself and production (sales) manager, and another standard between himself and top management, to be safe. 3. In good business times, the plant manager accepts a reasonable level of slack in a departmental budget 4. Slack in the budget is good to do things that cannot be officially approved 	<p><u>Reported Cronbach Alpha</u></p> <p><i>0.70 (Merchant, 1985a)</i> <i>0.74 Govindarajan (1986)</i> <i>0.75 (Nouri, 1994)</i> <i>0.75 (Nouri and Parker, 1996a)</i> <i>0.75 (Nouri and Parker, 1996b)</i> <i>0.74 (Lal et al, 1996)</i></p>
<p>Slack Manipulation (Onsi, 1973)</p> <ol style="list-style-type: none"> 1. With some skill, a manager can make his performance unit just as he wants. 2. The plant controller is “considerate” to the departmental manager who needs to attain budget. 	<p><i>Not Applicable</i></p>
<p>Budgetary Slack (Dunk, 1993a) 7 point Likert scale (Strongly Disagree/Strongly Agree)</p> <ol style="list-style-type: none"> 1. Standards set in the budget induce high productivity in my area of responsibility** 2. Budgets set for my area of responsibility are safely attainable 3. I have to carefully monitor costs in my area of responsibility because of budgetary constraints** 4. Budgets for my area of responsibility are not particularly demanding 5. Budget targets have not caused me to be particularly concerned with improving efficiency in my area of responsibility 6. Targets incorporated in the budget are difficult to reach** <p>** <i>reverse-scored items</i></p>	<p><i>0.68</i> <i>(only items 2, 4, 5, 6 were selected by Dunk, 1993a)</i></p>

Appendix 2.6 - Data Collection Methods (1995 – 2001 Studies)

Study	Control System/ Mechanisms under study	Data Collection Method	Usable Sample Size (%)	Cross-sectional Study (CS) or respondents from few firms (non- CS)
Lau et al. (1995) (AOS)	RAPM	Questionnaire	112 (47%)	CS – Random Sampling
O'Connor (1995) (AOS)	BP	Questionnaire	125 (44%)	CS – Convenience Sampling
Gul et al. (1995) (ABR)	BP	Questionnaire	37 (22%)	CS – Convenience Sampling
Abernethy & Lillis (1995) (AOS)	Manufacturing Performance Measures	Semi- structured interviews	42 (52%)	CS – Random Sampling
Chow et al. (1996) (AOS)	Tightness of Controls	Questionnaire	54 (95%)- US 28 (76%)- Japan	Non CS – from two groups of companies
Perera et al. (1997) (AOS)	Non-Financial Performance Measures	Questionnaire	105 (53%)	CS – Random Sampling.
Nouri and Parker (1998)	BP	Questionnaire	135(67%)	Non CS – from one large multinational
Chenhall & Langfield Smith (1998) (AOS)	Management Accounting Practices	Questionnaire	78(56%)	CS – Random Sampling
Abernethy & Brownell (1999) (AOS)	Interactive /Diagnostic Use of Controls	Questionnaire	63(75%)	CS – Random Sampling (Hospital Industry)
Chow et al. (1999) (AOS)	Management Controls	Questionnaire	159(41%)	Convenience Sampling

Appendix 2.6 (Continued)				
Ghosh & Lusch (2000) (AOS)	Performance Evaluation Controls	Internal Reports secondary data	N/A	Non CS – case study
Davila (2000) (AOS)	MCS Design	Questionnaire	56(77%)	Convenience Sampling (Medical Devices Industry)
Shields et al (2000) (AOS)	Standard-Based Controls	Questionnaire	358 (75%)	Non CS – from a auto multinational
Lau and Buckland (2000) (ABR)	BP, RAPM	Questionnaire	71 (47%)	CS – Random Sampling from mining industry
Tsui (2001) (AOS)	BP and MAS	Questionnaire	89 (72%)	CS – Convenience Sampling
<i>AOS – Accounting, Organizations and Society</i>				
<i>ABR – Accounting and Business Research</i>				

Appendix 5.1
Sample Selection and Profile of Companies
(Extracted from Kompas Directory – Australia)

Code	Manufacturing Industry Descriptions	Employee Size Categories				Total	%
		200-499	500-999	1,000 to 4,999	5,000+		
20	Food and Tobacco	13	12	13	1	39	10.9%
21	Beverages	3	1	3		7	1.9%
22	Leather, Skins, Fur and Related Products	6		2		8	2.2%
23	Textiles	11	2	2		15	4.2%
24	Clothing and Textile Products	11	7	3		21	5.8%
25	Wood and Cork	5	2	3		10	2.8%
26	Furniture	4	5	1		10	2.8%
27	Cellulose, Paper and Board Industries	5	2	3		10	2.8%
28	Printing and Publishing	8				8	2.2%
29	Rubber Products	4	2	1	1	8	2.2%
30	Plastic Products	11	3	3		17	4.7%
31	Acids, Alkalis and Pharmaceuticals	8	6	2		16	4.5%
32	Agricultural Chemicals, Insecticides, Detergents	15	6			21	5.8%
33	Non Metallic Mineral Products	3	4	2		9	2.5%
34	Base Metal Products	5	7	3		15	4.2%
35	Metal Containers, Cables, Wires	9	7		1	17	4.7%
36	Metal Pipes	7	2	1		10	2.8%
37	Nuclear, Electrical and Electronic Products	7	3	6		16	4.5%
38	Measuring, Testing, Optical, Photographic and Surgical	5	2	2		9	2.5%
39	Transport Infrastructure Equipment	8	7	4	1	20	5.6%
40	Hydraulic and Pneumatic Equipment	15	2	1		18	5.0%
41	Agricultural, Food and Drink, Tobacco Equipment	4	2			6	1.7%
42	Chemical, Rubber Plastics, Waste and Water Equipment	7		1		8	2.2%
44*	Pulp and Paper, Printing and Office Equipment	6		3	1	10	2.8%
45	Mining, Oil, Gas Extraction and Offshore Equipment	10	2			12	3.3%
46	Metal Working Plant and Equipment	5				5	1.4%
47	Wood and Cork Plant and Equipment	1				1	0.3%
48	General Mechanical Engineering	2	3	1		6	1.7%
49	Clocks, Jewellery, Souvenirs, Religious Items	3	2	2		7	1.9%
Total		201	91	62	5	359	

Identified Potential Respondents

Commercial/Marketing/Sales Managers	301
Operations/Technical/Manufacturing/Production Managers	<u>267</u>
	<u>568</u>

* There were no companies that were selected from the manufacturing code #43, since no of the ones listed matched the selection procedures.

Appendix 5.2: Template Survey Letter and Questionnaire

Title FirstName LastName
Title
Company
Address
Region Postcode
State

Dear Title LastName

Re: A Survey on How Managers Work with Control Systems in Manufacturing Companies

We are conducting nationwide research on the use of management control systems in manufacturing industries.

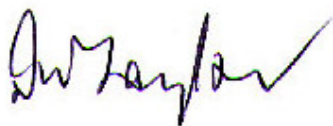
The aim of our study is to better understand the internal and external influences and demands which impact on the way senior managers work with various control systems in their organization. The control systems under investigation relate to the operations, budgeting and performance aspects of the business. This study will provide findings that can be of practical relevance to the design of control systems and the effectiveness of production and marketing managers.

Companies listed in Australian manufacturing business directories have been selected for this survey. The confidentiality of your response will be paramount to us. Your data will be used in statistical aggregates and no reference will be made to specific persons or companies. The researchers will take personal responsibility to ensure your identity is protected.

The validity of the results is heavily dependent on your individual participation. The attached questionnaire will not take more than 20 minutes of your time to complete. Should you need any further clarification, please do not hesitate to contact the undersigned on (08) 9266 7309 or email us at soobarot@cbs.curtin.edu.au.

Your participation is very important to the completion of this major project in Australia. It will also allow you to win a **\$500 cash gift** (see questionnaire cover). Should you wish to receive a copy of the results of this study, we would be pleased to oblige. Please return the completed questionnaire using the enclosed self-addressed, reply paid, envelope, by Monday, June 18th.

Thank you. Yours faithfully



Professor Dennis. W. Taylor
School of Accounting



Teeven Soobaroyen
School of Accounting

Appendix 6.1: Factor Loadings for Applicable Variables

Standard Operating Procedures (SOP) - Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.333	46.670	46.670	2.333	46.670	46.670
2	.896	17.920	64.590			
3	.713	14.264	78.853			
4	.557	11.130	89.984			
5	.501	10.016	100.000			

Extraction Method: Principal Component Analysis.

Budgetary Participation (BP) - Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.336	58.402	58.402	2.336	58.402	58.402
2	.721	18.021	76.422			
3	.510	12.746	89.168			
4	.433	10.832	100.000			

Extraction Method: Principal Component Analysis.

Dysfunctional Behaviour Gaming (DBGA) - Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.686	56.193	56.193	1.686	56.193	56.193
2	.720	24.012	80.205			
3	.594	19.795	100.000			

Extraction Method: Principal Component Analysis.

Dysfunctional Behaviour Information Manipulation (DBIN) - Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.765	69.129	69.129	2.765	69.129	69.129
2	.593	14.836	83.965			
3	.391	9.765	93.730			
4	.251	6.270	100.000			

Extraction Method: Principal Component Analysis.

Appendix 6.1 (continued)

Task Uncertainty (TU) - Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.180	54.508	54.508	2.180	54.508	54.508
2	.803	20.068	74.576			
3	.618	15.460	90.036			
4	.399	9.964	100.000			

Extraction Method: Principal Component Analysis.

Interactive Use of Controls (INT) - Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.587	79.359	79.359	1.587	79.359	79.359
2	.413	20.641	100.000			

Extraction Method: Principal Component Analysis.

Legitimizing Nature of Controls (LNC) - Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.419	56.984	56.984	3.419	56.984	56.984
2	1.000	16.662	73.646			
3	.601	10.020	83.666			
4	.479	7.981	91.646			
5	.316	5.260	96.907			
6	.186	3.093	100.000			

Extraction Method: Principal Component Analysis.